A STUDY TO ASSESS THE EFFECT OF TACTILE STIMULATION ON SELECTED PARAMETERS AMONG PRETERM BABIES IN SELECTED HOSPITAL AT NAGERCOIL.

A DISSERTATION SUBMITTED TO THE TAMIL NADU DR. M.G.R.MEDICAL UNIVERSITY, CHENNAI, IN PARTIAL FULFILLMENT FOR THE DEGREE OF MASTER OF SCIENCE IN NURSING

OCTOBER 2016.

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APPROVED BY THE DISSERTATION COMMITTEE ON: JULY 2016

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BONAFIDE CERTIFICATE

I hereby declare that the present dissertation titled **"A Study To Assess The Effect Of Tactile Stimulation On Selected Parameters Among Preterm Babies In Selected Hospital at Nagercoil"** is a bonafide research work done by **Mrs. E.Ida Divya Sherly, M.Sc Nursing II year** under the guidance of **Mrs.Baby Uma,M.Sc. (N), HOD of Child Health Nursing,** partial fulfillment for the Degree of Master of Science in Nursing, under The Tamil Nadu Dr. M.G.R. Medical University, Chennai.

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This is to certify that the dissertation entitled **"**A Study To Assess The Effect Of Tactile Stimulation On Selected Parameters Among Preterm Babies In Selected Hospital at Nagercoil**"**is a bonafide research work done by **Mrs. E.Ida Divya Sherly, M.Sc Nursing II year** Nehru Nursing College, Vallioor, in the partial fulfillment for the degree of Master of Science in Nursing under the Tamilnadu Dr.M.G.R.Medical University, Chennai.

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DECLARATION

I hereby declare that the present dissertation titled **"**A Study To Assess The Effect Of Tactile Stimulation On Selected Parameters Among Preterm Babies In Selected Hospital at Nagercoil**"., ** is the outcome of the original research work undertaken and carried out by me, under the guidance of **Mrs. Baby Uma, M.Sc(N), HOD of Child Health Nursing,** Nehru Nursing College, Vallioor.

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CHAPTER – I

INTRODUCTION

"The highest ideal of cure is the speedy,gentle,and enduring restoration of health by themost trustworthy and least harmful way."

- Samuel Hahnemann

Children constitute the most important and vulnerable segment of our population,they are truly the foundation of our nation .Hence the focus of every citizen should be to promote their health and safeguard their interests.so every unborn child should be allowed to achieve his /her optimal growth and development potential,so that they can effectively contribute towards nation's productivity ,the future of our nation depends on the way in which we nurture our children today**.(Park .K)**

The physiological parameters depict a higher deviation from normal findings for those infants who are low birth weight and other higher risk, babies have greater than average chance of morbidity and mortality, because of the conditions or circumstances superimposed on the normal course of events associated with birth and extrauterine existence and sometimes result in lifetime of disability**.(Ghai.O.P)**

Preterm low birth weight neonates are more prone for **chronic lung disease, pneumonia, apnoea and bradycardia,infection, jaundice, intraventricular hemorrhage (IVH), inability to maintain body temperature ,immature gastrointestinal and digestive system,anaemia,patent ductusarteriosus (PDA), retinopathy of prematurity (ROP),necrotizing enterocolitis (NEC)**and **sepsis.**Weight loss is the most common complication of

preterm neonates with low birth weight. The physical and mental well being of an individual depends on the correct management events in the prenatal period.Various modalities of treatments are available for improving the weight of neonates. Massage therapy is one among the alternative therapies for weight gain**.(Wong's)**

Touch has the unique effects on the human organism, All babies including smallest and sickest, need loving human contact, research showed that when premature or low birth weight babies receive routine care in the hospital, their pulse rate increase, their oxygen levels decrease indicating distress, when they are massaged ,however the opposite occur in their pulse rate come down to stable and their oxygen levels rise ,suggesting that they found massage is calming and soothing**.(Gupta .P)**

Touch is the primary means of learning about the world throughout infancy. Touch and massage are very nurturing and they are specially helpful for babies who have had repeated medical intervention. Therapy begins with and containment with the hands followed by stroking of any body areas that may have endured painful stimulus. In an area when health care protocols and costs are heavily scrutinized and preventive care is more strongly emphasized, the implications of low-intervention Touch Therapy should not be neglected. The sleeping pattern of the normal new born is approximately 21-22hr per day and in preterm babies the sleeping pattern is approximately 22-23hr per day in 24hr.Preterm babies sleep more than normal babies as they are less active and alert**.(Fredrick)**

Touch therapy is the manipulation of the body's soft tissue for the purpose of normalizing those tissues. Massage affects the whole body to decrease muscular tension and flaccidity in musculoskeletal system, Moreover it increases blood flow in circulatory system, flow of lymph in lymphatic system, it stimulates or sedates the nervous system and enhance tissue healing in skin .As such massage therapy has been recommended as an intervention to promote growth and development of preterm and low-birth weight neonates.(Basavanthappa B.T)

Massage therapy has been practiced worldwide for centuries. Newborn massage has been practiced in India and many countries since ancient days. The traditional art is now becoming popular as a therapy. As it provides greater advantages it can be practiced by parents as well as medical professionals.(Boner.A.L)

The massage can be given by both mother or trained professionals. Massage therapy is a safe, inexpensive treatment modality for healthy, preterm newborn when used in conjunction with traditional medicine, it may offer benefits of growth and development for newborn, and lead to shorter hospital stays in transitional care nursery. It is not only preterm neonates who may benefit from massage full term, infants may benefit too. (Marlow)

Neonatal nurses have a vital role to play in enabling health promotion of preterm with low birth weight babies through massage therapy. Massage therapy is one of the effective way by which the health promotion of the preterm with low birth weight babies can be achieved in terms of increasing weight and no adverse

effects have been reported when infant massage is done properly after careful instruction.

NEED FOR THE STUDY

"It is through our hands that we speak to the child and communicate. Touch is the child's first language , understanding come long after feeling."

Pre term babies are babies born too soon. Doctor calls them pre-term or premature babies because they have not had their full term of 38-42 week in the mother womb. A preterm infant is usually defined as a live-born infant born before the end of weeks 37 of gestation: another criterion used is a weight of less than 2500g at birth. Pre-maturity accounts for the largest number of admission to an NICU. The actual cause of pre-maturity is not known in most instances. The incidence of pre-maturity is lowest in the middle to high socioeconomic classes and highest in the lower socioeconomic class **.K.Park.,(1997)**

Most preterm babies lose weight during the first 3to4 days of life and loss is up to a maximum of 10 to 15% of the birth weight. The weight remains stationary for the next 4 to 5 days and then the babies start gaining at a rate of 1.0 to 1.5% of body weight per day. They regains their birth weight by the end of second week of life. Excessive weight loss delay in regaining the birth weight or slow weight gain suggest that either the baby is not being fed adequately or he is unwell and needs immediate attention**. Peters.,(2012)**

Worldwide over the past 20-30 yrs the incidence of preterm birth in most developed countries has been about 5-7% of live birth. Preterm birth occurs in approximately 7% of live birth of Caucasian infant. In African American infants,

the rate is doubled to approximately 14%. In the world 10% of all white babies were born pre-maturely and 20% of all black babies are born prematurely.**Steptoe.,(2011)**

According to WHO every year an estimated of 15 million babies are born preterm, and this number is rising. Almost 1 million children die each year due to complications of preterm birth. More than 60 % of preterm births occur in South Asia.

"Neonatal deaths account for 40% of all death of children under five". Death rates during the neonatal period (from birth to 28 days old) also reveal differences between rich and poor countries. Only 1% of all neonatal death occur in high income countries, where the neonatal mortality rate averages 4/1,000 live birth. In low-income countries, the average is about 33/1,000 live birth. The majority of neonatal death occur in south Asia because of its sizable population however 20 of the countries with the highest neonatal mortality rate are in sub-sahara Africa. Neonatal mortality rates exceed 50/1,000 live birth in Ethiopia, Liberia and Sierra Leone.**WHO(2012)**

According to the world health organization (WHO) neonatal causes of death were infections (34%) asphyxia (28%) Problems linked with preterm birth (23%). Preterm birth causes one-third of all infant deaths premature birth was the underlying cause of nearly twice as many infant deaths than previously estimated, according to a new analysis by researchers at the U.S. Center for Disease Control and Prevention**.(WHO 2013)**

In India the infant mortality rate in low and middle-income countries was approximately 88/1,000 live birth. Of these 28 death occurred in the early

neonatal period, the first week of life. The rate of early neonatal death hardly diminished, declining only to 25/1,000 live births in 2000. In most developing countries, neonatal mortality was 38/1,000 live birth compared to 6/1,000 in developed countries. The Nation's infant mortality rate in 2005 to is 6.9% from 6.8% in 2004.**Sharma .S.K.,(2004)**

Today the National center for Health statistic released final birth data for 2005 showing that the preterm birth rate is continuing its relentless rise with more than 525,000 babies or 12.7% born prematurely. That up from 12.5% in 2004 and the 2006 preliminary report indicates that the preterm birth rate will continue its upward trend and reach 12.8% about 543,000 babies. The preterm birth rate has increased more than 20% since 1990. About 10 to 12% of Indian babies are born preterm (less than 37 completed weeks) as compared to 5 to 7% incidence in the west. The statistic birth rate of preterm babies is approximately 140 per years in Vanivilas Hospital Bangalore, Karnataka**. Udani.R.H.,(2004)**

In India the rate of preterm births is rising and presently around 21 % .prematurity is the leading cause of newborn deaths and the second leading cause of death after pneumonia in children under the age of 5.India is the biggest contributor to the world preterm burden, with almost 36 million premature births accounting for 23.6% of the around 15 million global preterm births reported each year, of these 13 % are live preterm births. **CSSM.,(2010)**

According to India's survey report 2010,greatest numbers of preterm births occurred in India about 13% (35.19 lakh) of all births were pre-term. And nearly 35% of global pre-term babies were born in India. Most preterm neonates lose weight during the first 3 to 4 days of life and loss is up to a maximum of 10

to 15% of the birth weight. The weight remains stationary for the next 4 to 5 days and then the babies start gaining at a rate of 1.0 to 1.5% of body weight per day. They regain their birth weight by the end of second week of life. Excessive weight loss delay in regaining the birth weight or slow weight gain suggested that either the baby is not being fed adequately or he is unwell and needs immediate attention. Massage therapy helps in increasing weight in premature babies**.(Varma 2010)**

Nearly 24 % that is one in four children born prematurely across the globe in 2010 were in india. India recorded the highest number of preterm babies. Almost 13 % of all children born in india were born too soon **.Lancet.,(2015)**

China recorded the preterm birth rate of 7.8% of the global count with 11.72 lakh children born preterm. china recorded 23 lakh fewer preterm births than india. **Field.,(2013)**

60 % of premature babies born in South asia and Africa ,but this is not just a problem of the poorest nations :the USA (517,000 Preterm births) and Brazil (279300) ranked among the top 10 countries with the highest number of premature births in 2010.**Christopher 2010.**

The countries with the highest numbers of preterm births are India(35.19 lakh),China(11.7 lakh),Nigeria(7.7 lakh),Pakistan (7.48 lakh),Indonesia(6.75 lakh),US (5.17 lakh),Bangladesh(4.24 lakh),Brazil (2.79).

In tamilnadu the prevalence of preterm birth varies from 33-38% and that of low birth weight less than 2500 g(10-50 %). The infant mortality rate has shown a consistent decline from 110/1000 to 75/1000, but has stagnated since then.

A study was conducted on tactile stimulation effects on preterm neonate among 20 preterm neonate (mean gestational age, 31 weeks; mean birth weight 1.280g, mean time in neonatal intensive care unit 20 days) during transitional nursery care, to assess their growth and sleep wake behavior. Brazelton scale was used to assess the neonates. The tactile stimulation consisted of body stroking and passive movement of the limbs for three 15 min period per day for 10 days. The result revealed that the stimulated neonates had an average of 47% greater weight gain per day. The neonates were more active and alert during sleep/wake behavior observation, and showed more matures habituation, orientation motor, and range of state behavior on the Brazelton scale than control group infants. Finally their hospital stay was 6 days shorter. These data suggest that tactile stimulation may be a cost effective way of facilitating growth and behavior organization even in very small preterm neonates.

As above mention review and investigator experience suggest that preterm neonates who received massage therapy are more active, alert and spent less time sleeping during day time improved breast feeding and increased in vagal activity during massage may lead to increased gastric motility which may contribute to more efficient food absorption and thus lead to increase in weight in preterm babies. As touch become increasingly popular, there is a need to provide an opportunity for health care professionals to learn more and exchange the most updated knowledge in touch therapy. So investigator felt the need to carry out a study on tactile stimulation on selected parameters among preterm babies.

Statement of the problem

A Study to assess the effect of tactile stimulation on selected parameters among preterm babies in selected hospital at Nagercoil.

Objectives of the study

- To assess the pretest and posttest level of selected parameters among preterm babies .
- To determine the effectiveness of tactile stimulation on selected parameters among preterm babies in experimental group.
- To find out the association between the pretest level of selected parameters of preterm babies and the selected demographic variables in experimental group.

Hypothesis:

- **H1** – There is significant effect of tactile stimulation on selected parameters among preterm babies who received tactile stimulation than those preterm babies who did not receive tactile stimulation.
- **H2** – There is significant association between the pretest level of selected parameters among preterm babies and the selected demographic variables in experimental group.

Operational definition.

1)Selected Parameters: In this study selected parameters refers to the changes in

i. **Physiological parameters** such as temperature, heart rate,respiration and oxygen saturation.

ii. **Neuro Behavioural Items:**

Behavioural items such as habituation, cry, passive movements of arms, passive movements of legs,sleeping pattern, feeding pattern.

Neuro items include sucking reflex, rooting reflex,moro reflex,babinski reflex as measured by Modified Neonatal Neuro Behavioural Assessment Scale by Brazelton.

2)Tactile Stimulation: In this study tactile stimulation refers to moderate pressure and light pressure strokes from the head to foot with 10 ml of warm coconut oil daily morning and evening for the duration of 15 minutes.

3) Preterm Babies: In this study Preterm Babies refers to baby born before 37 completed weeks of gestation and weight between 1- 2 kilograms.

4)Effectiveness : In this study Effectiveness refers to the significant change in the selected parameters after the administration of tactile stimulation as measured by Modified Neonatal Neuro Behavioural Assessment Scale by Brazelton.

Delimitations

1. The study is delimited to preterm babies only.
2. The study is delimited to tactile stimulation only.

Assumption

1. Massage therapy may change the effect of selected parameters among babies.
2. Parents may give their consent to massage therapy on their babies.
3. Body massage might be used as an effective and safe non medical intervention for increasing weight gain velocity in preterm babies.

Variables

Independent Variables

Tactile Stimulation.

Dependent Variables

i. **Selected Physiological parameters** such as temperature, respiration, oxygen saturation, heart rate.

ii. **Neuro Behavioural Items**

Behavioural items such as habituation, cry, passive movements of arms, passive movements of legs, sleeping pattern, sucking and feeding pattern .

Neurological items such as sucking reflex, rooting reflex ,moro reflex, babinski reflex .

Demographic Variables

Demographic variables of Babies – Gender, Gestational age in weeks, Birth weight

CONCEPTUAL FRAMEWORK

The conceptual framework is comprised of interrelated concept that explains a natural phenomenon.

The study is designed to assess the effect of tactile stimulation on selected parameters among weight babies .The conceptual model for this study is based on modification made on J.W.KENNY'S OPEN SYSTEM MODEL.

This theory was introduced by Jennet .W. Kenny .she was born in the year 1946 at Scotland. The open system model was formulated in the year 1999. The open system model enumerates various aspects of system and interaction. The open system model is a continuous model which interacts with the environment. An open system should be contrasted with the concept of an isolated system which exchanges neither energy and matter nor information with its environment.

The model consists of 3 components

1.Input

2. Through put

3.Output

Input:

Based on Modified J.W Kenny's Open System Model input can be matter, energy and information from the environment on present study. Environment refers to hospital and input refers to assess the selected parameters includes the Physiological items such as temperature, respiration rate, oxygen saturation and heart rate. Behavioural items such as habituation, cry, movement of arms, movement of legs, sleeping pattern, feeding pattern. Neuro items such as sucking

reflex, rooting reflex, moro reflex, babinski reflex. Assessed by Modified Neonatal Neuro Behavioural Assessment Scale by Brazelton.

Throughput:

According to J.W Kenny, the matter, energy and information are continually processed through the system, which is also called complex transformation known as throughput process (i.e) energy and information for the maintenance of homeostasis of the system. In the present study process includes practicing tactile stimulation with 10 ml warm coconut oil for 5 days.

Output:

J.W. Kenny's noted after processing the input and throughput, the system returns to the output matter, energy, information to the environment in an altered state. Change is a feature of the process that is observable and measurable as output which should be different from that which is entered into the system. In the present study, the output is significant effect on selected parameters among preterm babies.

CHAPTER – II

REVIEW OF LITERATURE

According to polit and hungler the task of reviewing research literature involves the identification, selection, critical analysis and written description of existing information related literature which one received is described under the following headings. It includes

a) Literature related to physiology of touch and benefits of body massage

b) Studies related to the need for tactile stimulation on preterm babies

c) Studies related to the effect of tactile stimulation on preterm babies.

a) Literature related to physiology of touch and benefits of body massage

Diana Moore,(2010).,documented that the most important benefit of massaging premature baby is that it helps child to bond ,which is especially important ,if he has spent the first days of his life in an incubator. Massage can increase weight gain ,enhance growth and development ,improve digestion and metabolism ,encourage greater responsiveness and reduce pain. Massage stimulates the production of endorphins, which are the body's natural pain killer.

Field.T,(2002)., documented that there is an improvement in 31 – 47 % greater weight gain in preterm neonates receiving massage therapy compared with the standard medical treatment.

Gloria Wong , (2003)., documented from the gentle stroking and touching, babies feel loved and more secure. It also helps them to feel more relaxed. Babies who are massaged found that they were calmer ,cried less and slept better. Premature babies who received regular massage gained an average more weight than premature babies who did not receive massage. Even eight months later the massaged babies continued to show better growth and development. This showed that the infant massage has long term as well as short term benefits.

Quinn,(1989)., states that the skin is the largest organ of the body and it has innumerable nerve endings for touch ,pain and pressure that are responsible for various tactile and somatosthetic sensation that play an important role in the development of the neonates

b) Studies related to the need for tactile stimulation on preterm babies

Mann N.P. etal., (2009),conducted a randomized controlled trial to assess the effectiveness of massage therapy given by mothers and trained professionals to replicate the results of increased weight in Iran. The data was collected by random cluster design from 57 healthy, preterm infant assigned to three groups; two treatment group one in which the mothers performed the massage in first group and the other in which a professional female unrelated to the infant administered the treatment. Both these groups were compared to a control group

of preterm infant. The result revealed that over the 10-day study period, the two treatment group gained significantly more weight compared to the control group (291.3 and 311.3 vs. 225.5g, respectively). Study concluded that mothers were able to achieve the same effect as that of trained professionals, allowed cost-effective application of the treatment within the neonatal intensive care unit.

Charpak etal.,(2008),conducted a study to assess the effect of massage on weight gain and body fat deposition in preterm infants in Utah. Preterm infants (29-32 weeks) were randomized to the massage group (n = 22, 12 girls, 10 boys) or the control group (n = 22, 12 girls, 10 boys). Massage care was administered twice-daily by licensed massage therapists (6 d/wk for 4 weeks). Body weight, length, Ponderal Index (PI), body circumferences, and skin fold thickness (triceps, mid-thigh, and sub scapular [SSF]) were measured. Circulating insulin-like growth factor I, leptin, and adiponectin levels were determined by Enzyme-Linked Immunosorbent Assay. Daily dietary intake was collected. Energy and protein intake as well as increase in weight, length, and body circumferences were similar. Male infants in the massage group had smaller PI, triceps skin fold thickness, mid-thigh skin fold thickness, and SSF and increased over time compared with control male infants. Female infants in the massage group had larger SSF increased than control female infants .Circulating adiponectin increased over time in control group. Male infants and female infants were correlated to PI. The findings suggested that massage improved body fat deposition and, in turn, growth quality of preterm infants in a sex-specific manner.

Jyotiarora etal., (2005),conducted a study to evaluate the effect of tactile stimulation among preterm babies. The data was collected by Quasi experimental design from 60 preterm babies .In these 30 were assigned to control group and 30 were for experimental group. babies in the experimental group were assigned to tactile stimulation. The results found that the preterm babies , who received tactile stimulation achieved weight gain, stable heart rate, improved feeding pattern , increased sleeping pattern, and decreased crying spells than control group . The study concludes that the tactile stimulation when administered on preterm babies , has a beneficial effect on growth and development.

Dabi etal .,(2005).conducted a study on the effects of infant massage on weight gain physiological and behavioral responses in premature infant. The data was collected by using an equivalent control pretest-posttest design from two groups of 13 infants with gestational age less than 36 weeks at birth, births weight less than 2000g and no congenital anomalies. The experimental group received the massage intervention twice daily for 10 days. The data were collected for 10 min prior to and 10min after the massage. The result revealed the vagal tone was significantly higher after massage than before massage in the experimental group, while no change in the control group. The experimental group had higher scores for awake state and motor activity than the control group. Thus the result of the study showed that massage therapy might enhance optimal physiological responses and behavioral organization of premature infants Nursing staff in the NICU can use massage to promote the infant's capability to respond positively to his environment and to provide developmental support for healthy premature infants.

Salles etal .,(2005), conducted a randomised study to explore the potential underlying mechanism of weight gain in preterm with low birth weight neonates by assessing gastric motility, sympathetic and parasympathetic nervous system activity in response to massage therapy moderate pressure versus light pressure and control condition in a group of 40 preterm neonates. The study revealed that the preterm neonates received light pressure and preterm neonates received moderate pressure exhibited greater weight gain and increased vagal tone and gastric motility during and immediately after treatment. Gastric motility and vagal tone during massage therapy were significantly related to weight gain.

Sloan ., (1994) , conducted on tactile/kinesthetic stimulation effects on preterm neonate among 20 preterm neonates (mean gestational age, 31 weeks; mean birth weight 1.280g, mean time in neonatal intensive care unit 20 days) during transitional nursery care, to assess their growth and sleep wake behaviour. Brazelton scale was used to assess the neonates.The tactile stimulation consisted of body stroking and passive movement of the limbs for three 15 min period per day for 10 days. The result revealed that the stimulated neonates had an average of 47% greater weight gain per day, and tactile/kinesthetic stimulation was a cost effective way to facilitating growth and sleep wake behaviour in very small preterm neonates.

c)**Studies on the effect of tactile stimulation on preterm babies**.

Huda ShawkyMahmud ., (2015) , conducted a quasi experimental study to assess the effect of oil massage therapy on anthropometric parameters and behavioural state of stable LBW neonates. The sample consists of 60 LBW

neonates which were selected through purposive sampling technique. 30 neonates assigned to study group and 30 neonates to control group. The study group received the oil massage therapy for 15 minutes per day for 10 consecutive days. Pre test and post test was assessed by Brazelton Neuro Behavioural Assessment Scale. The study findings revealed that the study group gained significantly total weight gain with mean 254.70 , SD 29.6 than the control group with mean 110.20 SD 50.98 . Hence it concludes that the oil massage therapy was an effective and safe intervention for increasing anthropometric parameters and improving behavioural state of LBW neonates.

Safasalah ,. (2014),conducted an equivalent control pretest-posttest design to note the responses of premature infants towards coconut oil massage (tactile and kinesthetic stimulation). These responses measured by weight, physiological (vagal tone, heart rate, oxygen saturation) and behavioral responses (behavioral states, motor activities, and behavioral distress).. The sample was divided into two groups of 13 infants with gestational age less than 36 weeks at birth, birth weight less than 2000g, and no congenital anomalies. The experimental group received the massage intervention twice daily for 10days. The data were collected for 10 minutes prior to and 10 minutes after the massage. The vagal tone was significantly higher after massage than before massage in the experimental group, while no change in the control group. The experimental group had significantly higher scores for awake state and motor activity than the control group. Significantly greater awake state, more fidgeting or crying and increased motor activity were reported after massage than before massage. The

results of this study showed that massage therapy might enhance optimal physiological responses and behavioral organization of premature infants. Nursing staff in the NICU can use massage to promote the infant's capability to respond positively to his environment and to provide developmental support for healthy premature infants.

Faranak Aliabadi Etal ., (2013) , conducted a randomized controlled study to assess the effect of tactile kinesthetic stimulation on low birth weight babies at Tehran . the sample consists of 40 low birth weight babies in which 20 assigned to study group and 20 to control group through random sampling technique. Massage therapy was begun and continued for 10 consecutive days , 3 times a day for 15 minutes. Pre test and post test was assessed by Brazelton Neuro Behavioural Assessment Scale. The study findings revealed that the gestational age, birth weight, length and head circumference are equal for both the groups and weight was increased with the pre test mean 2015 , SD 309 in experimental and control group mean 2014 , SD 305, and post test mean 1930.0 SD 338.50 in experimental group and control group mean 1945.5 , SD 299.8 & p = 0.2(NS). Hence the study reveals that the tactile kinesthetic stimulation was effective in increasing the weight in low birth weight babies.

Sedigh Ahakhavan Karbasi Etal., (2013) conducted a randomized single, blind, open parallel group clinical trial to evaluate the efficacy of body massage on growth parameters of low birth weight neonates in Iran. 40 newborns were selected through simple randomization and assigned to two groups.20 neonates in study group and 20 neonates in control group. The body massage was

carried for the duration of 10minutes in three session (morning, at noon , evening) and it continued for 14consecutive days. The pre test and post test was assessed by anthropometric measurements and Dubowitz scale. The results showed that in the pre test mean weight was 1879 , SD 203 and post test mean was 2201 , SD 93 & p value 0.05(S) , pre test mean height was 42.64 , SD 1.38 and post test mean was 44.01 , SD 1.27 & p value 0.251 pretest mean head circumference was 31.06 , SD 1.11 and post test mean was 32.6,SD 0.51. Hence the results showed that only weight was significantly higher than the control group with mean 3250 , SD 305 & 2948 , SD 121 & p value 0.005(S). Thus it concludes that body massage is an effective intervention for increasing weight gain velocity in low birth weight preterm neonates.

Reza Sacidi Etal., (2013) conducted a randomized clinical trial to investigate the effect of massage with medium – chain triglyceride oil on weight gain in premature neonates in Qaem education hospital Iran. The samples consists of 121 stable premature neonates selected through simple and non probability type , the samples were randomly divided into 3 groups. 40 in oil massage and 40 in massage group and 41 in control groups. In the oil massage group , the neonates received massage therapy for four times a day for five minutes for one week without using oil, for control group assessed without intervention. In oil massage group , the mean age was 30.8 SD 2.4 years. In massage and control group the mean age was 31.6 and SD 2.7. No statistically meaningful difference was observed between the three groups regarding age p = 0.08. The mean neonatal weight in the first, second and third group mean was1484, SD 378

,mean1589, SD 589,mean1559 ,SD 425. No significance with weight p = 0.04 , the mean head circumference was 29, SD 1.9 and 30, SD 2.7 and 30.0 SD 2.5. No significance with head circumference p = 0.2 . Hence the result showed that the daily massage with MCT oil in premature neonates is effective for weight gain without causing any complications.

Ramasundari B., (2009) , conducted a pre experimental study to evaluate the effectiveness of massage therapy on health promotion of newborns in maternity ward of the Omsakthi hospital , Krishnagiri. The sample comprised of 30 newborns delivered by LSCS selected through convenient sampling technique. Massage was given with coconut oil all over the body for 20 minutes per day for five days. Pretest and posttest assessment was by using Brazelton Neuro Behavioural Assessment Scale. The study findings revealed that the pre and post assessment level of massage therapy reveals the mean difference was 1.8 & SD 0.3888 and the paired 't' test value 8.11, which was highly significant at $p< 0.001$ level in the sleeping time. In crying spell , the mean difference was 0.9 & SD 0.045 and the paired 't' value 9 , which was highly significant at $p<0.001$ level . In the feeding frequency , the mean difference was 1.07 & SD 0.060 and the paired 't' value is 7.44 showed high level of significance at $p< 0.001$ level. Hence it showed that health promotion was achieved by applying massage therapy on newborns and their crying spells reduced , feeding frequency increased and also sleeping time increased.

Pasilikathilaka, Nalinijeyavantha (2009) conducted a two group pre and post test quasi experimental design to determine the effect of tactile stimulation

on selected parameters among preterm babies. the sample consists of 60 preterm babies among them 30 samples assigned to the experimental group and 30 samples assigned to the control group through convenient sampling technique. Tactile stimulation was started with 10 ml of sesame oil in morning for 15 minutes and continued at the same time daily for 5 days in experimental group. Post test assessment of physiological and behavioural parameters were done on 3^{rd},4^{th} and 5^{th} day of tactile stimulation during morning and evening for experimental group.The post test assessment were done on the control group on the same days without giving interventions. Post test assessment was done by structured interview schedule to assess the behavioural parameters and physiological measurement. Results shows that babies who received tactile stimulation achieved weight gain ($t = 4.01$), stable heart ($t = 12.5$), improved feeding pattern ($t = 21.69$), increased sleeping time ($t = 11.63$),decreased crying spells ($t = 10.25$) than control group ($p < 0.005$). Hence the study concludes that the tactile stimulation ,when administered to preterm babies , has a beneficial effect on growth and behavioural development.

MukeshVir Singh., (2008) conducted a randomized controlled trial to study the effect of physical stimulation in very low birth weight babies and its relation with gross motor mile stones and weight gain up to one year of age in rural areas of Northern India. 60 babies were selected randomly and assigned to each groups. 20 in massage with oil , 20 in massage without oil, 20 without massage. The massage comprised of 20 gentle strokes the duration of the massage was 10 minutes performed 4 times a day. Infants were massaged with 10 ml of

mustard oil .the study results revealed that the weight gain and mile stone development in the oil massage group was significantly greater than the massage without oil or no massage groups. Again it was significantly greater in the massage without oil than no massage group. With mean 3.14 ,SD 0.3575 in oil massage and mean 3.64 , SD 0.3972 in only massage and mean 4.14 , SD 0.4094 in no massage. Hence the study showed that the weight gain in the oil massage group was higher compared to the only massage group and no ,massage group, this difference and the difference in other anthropometric parameters were statistically significant thus it proves that oil application may have a potential to improve weight gain and early gain of gross motor mile stones among preterm very low birth weight neonates.

Chingthouliue K .G., (2008), conducted a quasi experimental study to assess the effect of touch therapy on weight gain and sleep awake pattern among preterm babies in selected hospitals in Bangalore. The sample comprised of 40 preterm babies 20 assigned to experimental group and 20 in control group through convenient sampling technique, the touch therapy was scheduled for 15 minutes twice daily for 5 consecutive days. The pre& post test was assessed by observational checklist. Post test was assessed on the sixth day. The results revealed that the massaged babies had average weight gain and sleep awake pattern which is 28% greater than normal. Hence the study concludes that the touch therapy enhance the weight gain and improve sleep awake pattern of preterm babies.

Haekyung Lee., (2007) , conducted a non-equivalent control group pretest posttest design to test the effectiveness of infant massage on weight, height and mother infant interaction. The samples were selected through convenient sampling.32 infants were assigned to experimental group and 32 in control group. The infant massage was given to the infants for four days per week. Each massage consisted of 5 minutes tactile kinesthetic stimulation, post test was assessed by the Mothers Perception of Infant Temperament Scale. The result of the study reveals that after 4 weeks of massage , there was no significant difference on weight gain and height increase between two groups value. Comparison of the total scores for the mother – infant interaction between the two groups showed a significant difference "t" = 5.21 p = 0.000. There were also significant difference on maternal response "t" = 3.78,p = 0.000.infant response "t"= 4.05 p =0.000 in the mother infant interaction between the two groups. Over all the results of this study reassure that infant massage facilitates the mother infant interaction for infants and mother who give massage to their baby.

Saumya John etal., (2005) conducted a quasi-experimental two group pretest and post design to assess the effectiveness of massage therapy on weight and sleepwake pattern among preterm infants at Government Head Quarters Hospital kancheepuram. 60 preterm infants were included in the study through convenient sampling technique. 30 infants assigned to the experimental group and 30 infants assigned to the control group. Massage therapy was given to the pre term infants of study group15 minutes for 5 days. Post test was assessed for both the study group and control group. The result of the study reveals that the

comparison of pretest and post test scores of preterm infants in experimental group pretest mean weight was 1880.33 , SD 234.29, posttest mean weight was 2032.50, SD 261.39 & calculated "t" value 12 .47 and p = 0.000(S), In control group the pre test mean weight was 1858.67, SD 227.20 post test mean weight was 1857.94, SD 216.11 & calculated"t"value 0.14 and p = 0.89(NS).Comparison of sleep wake pattern of pretest mean 2.10, SD 0.61, post test mean 2.83, SD 0.38&calculated "t" value 8.93 and p = 0.000(S) in study group and in control group sleepwake pattern of pretest mean was 2.10, SD 0.48, post test mean 2.13, SD 0.43 &calculated "t" value 1.000 and p = 0.33 (S). Association between post test level of weight and selected demographic variables in experimental group gestational age $x^2 = 15.75$, condition of infant $x^2 = 19.62$, type of feed $x^2 = 7.81$ & association between post test sleep wake pattern with selected demographic variables in experimental group gestational age $x^2 = 15.75$, condition of infant $x^2 = 8.76$, type of feed x = 8.72. Correlation between weight and sleep wake pattern among preterm infants before massage therapy in experimental group mean weight 1880.33 , SD 234.29 & sleep wake pattern mean2.10, SD 0.61calculated "t" value 0.5 and p = 0.01(S). and in control group mean was 1858.67, SD 227.24 &sleep wake pattern mean was 2.10 SD 0.48, calculated "r" value 0.57and p =0.01(S). Correlation between weight and sleep wake pattern among preterm infants after massage therapy in experimental group mean weight was 2032.50, SD261.39 & sleep wake pattern mean was 2.83 , SD 0.38, calculated "t" value 0.5 and p = 0.01(S) and in control group mean was 1857.94 , SD 216.11 & sleep wake pattern mean was 2.13, SD 0.43, calculated "r" value was 0.43 and p = 0.02(S). Hence the findings of the study revealed that

the pre test and post test scores of weight and sleep wake pattern of preterm infants of experimental group showed statistically significant difference than control group by suggesting that massage therapy is promoting weight gain and sleep wake pattern. Among the demographic variables such as gestational age , type of feeding and birth weight shown significant association between weight and sleep wake pattern.

Sankarnarayanan .K .etal., (2004), conducted a open randomized controlled trial to compare the effect of massage with coconut oil versus mineral oil and placebo(powder) on growth velocity and neurobehaviour in well term and preterm infants. Totally 224 infants were randomly selected and assigned to each group in term and preterm infants. 38 infants were placed in coconut oil group , 37 infants in mineral oil group and placebo group in term infants. In preterm infants group 32 infants placed in coconut oil group and 32 in mineral oil group and 31 in placebo group. The massage was given to each groups. The total duration of each session was 5 minutes and done 4 times a day for 31 days. Pre and post test was assessed by Brazelton Neuro Behavioural Assessment Scale. The result findings revealed that the preterm mean weight was 1792.89 , SD 149.56 in coconut oil and gestational age mean was 34.89 , SD 1.27, And it shows no statistically significant difference between weight and gestational age of babies .In coconut oil group weight was significantly higher as compared to the mineral oil and placebo group. Hence the effect of massage with coconut oil was effective on growth and Neuro Behaviour in well term and preterm infants.

Mathai . S etal ., (2001), conducted a controlled trial study to determine the effect of tactile kinesthetic stimulation to preterm babies on physiologic parameters , physical growth and behavioural development. The sample consists of 48 preterm babies. Neonates were divided into two groups .pre test and post test was assessed by Brazelton Neuro Behavioural Assessment Scale. The massage was given to study group babies daily 3 times and continued for 28 days ,and each session comprises of 15 minutes. the study reveals that there is an increase in heart rate in experimental group during stimulation. It also showed a weight gain on the Brazelton Scale , the test group showed statistically significant improved scores on the orientation , range of state , regulation and stability. Thus it concludes that the tactile kinesthetic stimulation was beneficial on growth and behavioural development.

CHAPTER – III

RESEARCH METHODOLOGY

This chapter deals with the methodology adopted by the researcher for the study includes research approach, research design, variables, the settings of the study, population, sample, sampling technique, sample size, description of the tool, validity, reliability, pilot study, intervention, data collection procedure, plan for data analysis and ethical consideration.

Research Approach

Quantitative approach was used in this study.

Research Design

Research design is defined as plan of how, when and where data were collected and analyzed.

Research design used for the study was Quasi Experimental research design - **Non equivalent , control group design**.

The diagrammatic representation of this design was as follows,

Group	Pre test	Intervention	Post test$_1$	Post test$_2$
Experimental Group	O_1	X	O_2	O_3
Control Group	O_1	-	O_2	O_3

Keys:

O_1 - Represent the pre-test score among preterm babies .

X - Represent administering the intervention tactile stimulation.

O_2 - Represent the third day post-test score among preterm babies.

O_2 -Represent the fifth day post-test score among preterm babies.

--- - No intervention.

Variables

Independent Variables

Tactile Stimulation.

Dependent Variables

Selected Physiological parameters such as temperature,respiration,oxygen saturation,heart rate.

Neuro BehaviouralItems:

Behavioural items such as habituation, cry, passive movements of arms, passive movements of legs,sleeping pattern, feeding pattern,

Neuro items include sucking reflex, rooting reflex, moro reflex, babinski reflex .

Demographic Variables

Demographic variables of Babies – Gender, Gestational age in weeks, Birth weight

Setting of the study:

The study was conducted in Kanyakumari Government Medical College Hospital at Nagercoil.

Population

Target population

The entire population in which the researcher are interested and to which they would like to generalize the research findings.

In this study, the target population comprised of Preterm babies.

Accessible population

The aggregate of cases that conform to designated inclusion or exclusion criteria and that are accessible as subjects of the study.

The accessible population was Preterm babies who meets the inclusion criteria in government medical college hospital,Asaripallam.

Sample

A part or subset of population selected to participate in research study.

The sample subjects consists of preterm babies who were full filled the inclusion criteria.

Sampling technique

Convenient Sampling Technique.

Sample size

The sample consists of 30 preterm babies in experimental group and 30 preterm babies in control group.

Criteria for sample selection

The sample was selected based on the following criteria:

Inclusion Criteria

1. Neonates who are born between 32 - 37completed weeks of gestation.
2. Neonates having birth weight between 1000 - 2000 grams.
3. Neonates with Apgar score minimum 7 at 1 & 5 minutes with no resuscitation required at birth.
4. Neonates delivered by normal vaginal delivery or LSCS.
5. Neonates under warmer.

Exclusion Criteria

1. Neonates who have undergone surgery.
2. Neonates having any congenital anomalies.
3. Sick babies or those with neuro muscular disorders.
4. Neonates with skin disorders.

5. Neonates under phototherapy.

6. Neonates born through forceps delivery ,vaccum extraction.

Description of the tool

The tool consists of three sections:

Section A:

It consists of demographic variables such as gestational age, gender, birth weight.

Section B:

It consists of physiological parameters such as temperature, heart rate, respiratory rate, oxygen saturation.

Scoring key

1-4 Mild Prematurity

5-8 Moderate Prematurity

9-12 Severe Prematurity

Section C:

It consists of Modified Neonatal Neuro Behavioural Assessment Scale by Brazelton to assess the selected parameters.

Neuro Behavioural Items:

Behavioural items such as habituation,cry,passive movements ofarms,passive movements of legs,sleeping pattern, feeding pattern.

Neuro items include sucking reflex,rooting reflex,moro reflex,babinskirefle

Scoring key

0-10 Severe prematurity

11-20 Moderate prematurity

21-30 Mild prematurity

Validity

The content validity of the tool was established on the opinion of one medical expert in the field of Paediatrics and four paediatric nursing experts. The tool was modified as per the consensus of all the experts and the tool was finalized.

Reliability

The reliability score for Brazelton Neonatal Neuro Behavioural Assessment Scale r =0 .98, and the Physiological parameters r = 0.82 was determined by inter rated method. Hence the tool was highly reliable.

Pilot study

The pilot study was a trial run for the major study. The tool was used for the pilot study to test the feasibility and practicability. The study was conducted in lakshmi child care centre , Sucheendram . A formal permission was obtained from the Director of Lakshmi Child Care Centre ,Sucheendram.

The pilot study was conducted in Lakshmi Child Care Centre , Sucheendram . 10 samples were selected by using convenient sampling method 5 samples in experimental group and 5 samples in the control group. Interventions

were given to the samples in experimental group & Post test was conducted after 5 days. Pilot study findings showed that the intervention of touch was practicable with preterm babies.

Data collection procedure

- The investigator obtained formal permission prior to data collection from concerned authority in Government Medical College Hospital .Investigator explained the purpose of the study and oral consent was obtained from the parents. The babies who met the inclusion criteria was selected. Pre test was conducted by using Modified Neonatal Neurobehavioural Assessment Scale by Brazelton for both experimental and control group. The investigator started giving the tactile stimulation with 10 ml of coconut oil to the selected preterm babies in experimental group.

Procedure

Step 1: Place the baby on the arms of the nurse in prone position. Four firm strokes with palms of the hands of nurse , were provided in 3 areas.(a) neck from midline outwards with both hands simultaneously ; and (b) shoulders from midline outwards with both hands simultaneously, (c) back from nape of neck down to buttocks with firm , long strokes with alternate hands. The duration of this step was 5 minutes.

Step2 : Place the baby on the arms of the nurse in supine position . Four firm strokes with palms of the hands of nurse were provided in each area (a) fore head – from midline , outwards with both hands simultaneously.(b) cheeks – from side of hands with both hands simultaneously in rotating and clockwise direction..(c) chest 'butterfly' stroking from midline upwards , outwards and inwards back to initiating point.(d) abdomen – from the appendix in a clock wise direction around abdomen avoiding the epigastrium and probes, with gentle strokes. The duration of the step was 5 minutes.

Step 3 : continues the massage to the upper limbs and lower limbs. (a) upper limbs (each separately) from shoulder to forearm using alternate hands for stroking.(b) forearms to palms using alternate hands. (c) palms from wrist to finger tips using alternate hands for stroking.(d) lower limbs (each separately) from thighs to ankles .(e)ankles to soles (f) soles from heel to toe tips using alternate hands for stroking.The procedure was repeated on each day morning and evening.The total duration of the procedure was 15 minutes.

The investigator conducted the post test on 3rd and 5th day of evening by using the same tool for the experimental group and the investigator conducted the post test on 3rd and 5th day of evening without intervention for the control group.

Plan for data analysis

Both descriptive and inferential statistics were used.

Descriptive Statistics

- The frequency and percentage distribution of demographic variables, physiological parameters and behavioural items.

- Mean and standard deviation was used to assess the selected parameters among preterm babies.

Inferential Statistics

- Paired‘t’-test was used to compare the pre and post test score of selected parameters among preterm babies in experimental and control group.
- Independent “t” test was used to compare the scores of selected parameters among preterm babies in experimental & control group.
- Chi-square was used to associate the pretest score of selected parameters among preterm babies with their selected demographic variables.

Ethical Consideration

The proposed study was conducted after the approval of the research committee of college. Permission was obtained from the Hospital. The written consent was obtained before data collection. Assurance was given to the study participants regarding the confidentiality of the data collected.

Summary

This chapter dealt with research approach, research design, variables, the setting of the study, population, sample, sampling technique, sample size, description of tool, validity, reliability, pilot study, , data collection, procedure, plan for data collection, and ethical considerations

CHAPTER - IV

ANALYSIS AND INTERPRETATION

Polit and Hunger (1999) state that statistical analysis is a method of rendering quantitative information in a meaningful and intelligible manner. Statistical procedure enables the researcher to organize, analyze, evaluate, interpret and communicate numerical information meaningful

This chapter deals with the statistical analysis and interpretations of the data to assess the effect of tactile stimulation on selected parameters among preterm babies at Nagercoil .

Data analysis was computed after transferring the collected data into a coding sheet. The data was analysed, tabulated and interpreted using descriptive and inferential statistics.

Organization of data

The data has been tabulated and organized as follows,

Section A : Frequency & percentage distribution of sample according to the demographic variables.

Section B : Frequency and percentage distribution of score in behavioural and physiologic items among preterm babies in experimental and control group.

Section C : Assess the effectiveness of tactile stimulation on selected parameters among preterm babies.

Section D : Compare the pre test and post test score on selected parameters among preterm babies.

Section E : Association between pre test score on selected parameters among preterm babies with their selected demographic variables.

Section A

This section deals with frequency and percentage distribution of demographic variables among preterm babies

Table 1 : Frequency and percentage distribution of demographic variables of babies among preterm babies n=60

SNO	Demographic Variables Of Babies	Experimental group n= 30		Control group n= 30	
		f	%	f	%
1	**Gender**				
	a) Male	16	53.33	13	43.33
	b) Female	14	46.67	17	56.67
2	**Gestational Age (in weeks)**				
	a) 34 – 37 weeks	4	13.33	5	16.67
	b) 32 – 34 weeks	11	36.67	12	40.00
	c) Less than 32 weeks	15	50.00	13	43.33
3	**Birth Weight(grams)**				
	a) 1000 – 1300 grams	9	30.00	8	26.67
	b) 1301 – 1700 grams	16	53.33	16	53.33
	c) 1701 – 2000 grams	5	16.67	6	20.00

Table : 1 reveals that ,

The demographic variables of babies among preterm babies on experimental and control group such as gender, gestational age and birth weight.

Regarding gender 16(53.33 %) were males in experimental group and 13(43.33 %) in control group and 14(46.67 %) females in experimental group and 17(56.67 %) in control group.

Regarding Gestational age majority 15(50.00%) of babies in experimental were babies less than 32 weeks , 11(36.67) of babies in control group were between 32 – 34 weeks and 12(40.00%) of babies in control group and least 4(13.33%) in experimental group and 5(16.67%) in control group.

Regarding Birth weight 9(30.00%) less than 1000 – 1300 grams in experimental group and 8(26.67%) in control group and majority 16(53.33%) of babies between 1301 – 1700 grams in experimental group and 9(30.00%) in control group, and least 5(16.67%) in experimental group and 6(20.00)in control group were between 1701 – 2000 grams.

Section B

This section deals with frequency and percentage distribution of pre test and post test score on behavioural items and physiological parameters among preterm babies

Table 2: Frequency and percentage distribution of on behavioural items among preterm babies in experimental group

n=30

S.No.	Behavioural Items	Pre Test		Post Test			
		f	%	Day III		Day V	
				f	%	F	%
1	Severe prematurity	30	100.00	2	6.67	0	0.00
2	Moderate prematurity	0	0.00	26	86.66	7	23.33
3	Mild prematurity	0	0.00	2	6.67	23	76.67

Table 2 shows that ,

In the pre test 30(100%) had severe prematurity. On the third day 2(6.67%) had severe prematurity and 26(86.66%) had moderate prematurity and 2(6.67%) had mild prematurity in the post test. On the fifth day 7(23.33%) had moderate prematurity and 23(76.67%) had mild pre maturity and no one had severe prematurity in the post test in experimental group.

Table 3 : Frequency and percentage distribution on behavioural items among preterm babies in control group.

n=30

S.No.	Behavioural Items	Pre Test		Post Test			
		f	%	Day III		Day V	
				f	%	F	%
1	Severe prematurity	30	100.00	21	70.00	16	53.33
2	Moderate prematurity	0	0.00	9	30.00	14	46.67
3	Mild prematurity	0	0.00	0	0.00	0	0.00

Table 3 shows that 30(100%) of babies had severe prematurity on pre test in control group. On third day 21(70%) of babies had severe prematurity and 9(30%) had moderate prematurity. On fifth day 16(53.33%) of babies had severe prematurity and 14(46.67%) had moderate prematurity.

Table 4 : Frequency and percentage distribution on physiological parameters among preterm babies in experimental group

n=30

S.No.	Physiological Items	Pre Test		Post Test			
		f	%	Day III		Day V	
				f	%	F	%
1	Severe prematurity	16	53.33	0	0.00	0	0.00
2	Moderate prematurity	14	46.67	30	100.00	10	33.33
3	Mild prematurity	0	0.00	0	0.00	20	66.67

Table 4 shows that 16(53.33%) had severe prematurity and 14(46.67%) had moderate prematurity in the pre test. On the third day 30(100%) had moderate prematurity. On the fifth day 20(66.67%) had mild prematurity and 10(33.33%) had moderate prematurity and no one had severe prematurity in the post test in experimental group.

Table 5 :Frequency and percentage distribution on physiological parameters among preterm babies in control group

n=30

S.No.	Physiological Items	Pre Test		Post Test			
		f	%	Day III		Day V	
				f	%	F	%
1	Severe prematurity	15	50.00	16	53.33	0	0.00
2	Moderate prematurity	15	50.00	13	43.33	28	93.33
3	Mild prematurity	0	0.00	1	3.33	2	6.67

Table 5 shows that 15(50.00%) had severe prematurity and 15(50.00%) had moderate prematurity in the pre test. On the third day 16(53.33%) had severe prematurity and 13(43.33%) had moderate prematurity and 1(3.33.%) had mild prematurity. On the fifth day 28(93.33%) had moderate pre maturity and 2(6.67%) had moderate prematurity and no one had severe prematurity in the post test in control group.

Section C

This section deals with the effectiveness of tactile stimulation on selected parameters among preterm babies

Table 6 : Effectiveness of tactile stimulation on behavioural items among preterm babies in experimental group

n=30

S No.	Days	Test	Mean	Standard deviation	Mean difference	Paired t test	Significance at 5% level
1	I day	Pre Test	8.46	1.50	6.80	15.91 S	29 df 2.042
	III day	Post Test	15.26	2.87			
2	III day	Post Test	15.26	2.87	7.03	16.66 S	29 df 2.042
	V day	Post Test	22.30	2.64			
3	I day	Pre Test	8.46	1.50	13.83	32.86 S	29 df2.042
	V day	Post Test	22.30	2.64			

S = significant at 0.05 level

Table 6 shows that ,

In the pre test mean tactile stimulation effectiveness in terms of behavioural items score was 8.46 with standard deviation 1.50.On the third day , the post test score was 15.26 with standard deviation 2.87 , the mean difference was (6.80) high and statistically significant. That is tactile stimulation was effective in improving the level of maturity among preterm babies. On the fifth day, the post test score was 22.30 with standard deviation 2.64.when compare with the third day post test score, the mean difference (7.03) was high and statistically significant. That is the level of maturity of preterm babies were improving by practicing the tactile stimulation.

When we compare the pretest score with the fifth day post test, the mean difference was high and statistically significant. Hence the tactile stimulation was effective in improving the level of maturity among preterm babies in experimental group.

Table 7 : Effectiveness of tactile stimulation on behavioural items among preterm babies in control group

n=30

S.No.	Days	Test	Mean	Standard deviation	Mean difference	Paired t test	Significance at 5% level
1	I day	Pre Test	8.43	1.52	1.15	8.13 S	29 df 2.042
	III day	Post Test	9.58	1.21			
2	III day	Post Test	9.58	1.21	1.15	10.09 S	29 df 2.042
	V day	Post Test	10.73	0.94			
3	I day	Pre Test	8.43	1.52	2.30	11.26 S	29 df 2.042
	V day	Post Test	10.73	0.94			

S : Significant at 0.05 level

Table7 shows that

In the pre test mean score in terms of behavioural items score was 8.43 with standard deviation 1.52.

On the third day , the post test score was 9.58 with standard deviation 1.21 , the mean difference was (1.15) statistically significant. That is normal treatment was effective in improving the level of maturity among preterm babies.

On the fifth day, the post test score was 10.73with standard deviation 0.94.when compared with the third day post test score, the mean difference (1.15) was statistically significant. That is the level of maturity of preterm babies were slowly improving by normal treatment.

When we compare the pretest score with the fifth day post test, the mean difference was (2.3) and statistically significant. Hence the normal treatment was least effective in improving the level of maturity among preterm babies in control group.

Table 8 : Effectiveness of tactile stimulation on physiological parameters among preterm babies in experimental group

n=30

S.No.	Days	Test	Mean	Standard deviation	Mean difference	Paired t test	Significance at 5% level
1	I day	Pre Test	8.43	0.68	1.20	8.16 S	29 df 2.042
	III day	Post Test	7.23	0.73			
2	III day	Post Test	7.23	0.73	2.80	21.46 S	29 df 2.042
	V day	Post Test	4.43	0.75			
3	I day	Pre Test	8.43	0.68	4.00	21.15 S	29 df 2.042
	V day	Post Test	4.43	0.75			

S: Significant at 0.05 level

Table 8 shows that,

In the pretest mean tactile stimulation effectiveness in terms of physiological parameters score was 8.43 with standard deviation 0.68.

On the third day , the post test score was 7.23 with standard deviation 0.73 , the mean difference was (1.20) high and statistically significant. That is tactile

stimulation was effective in improving the level of maturity among preterm babies. On the fifth day, the post test score was 4.43 with standard deviation 0.75.when compare with the third day post test score, the mean difference (2.80) was high and statistically significant. That is the level of maturity of preterm babies were improving by practicing the tactile stimulation.

When we compare the pretest score with the fifth day post test, the mean difference was (4) high and statistically significant. Hence the tactile stimulation was effective in improving the level of maturity among preterm babies in experimental group.

Table 9 : Effectiveness of tactile stimulation on physiological parameters among preterm babies in control group

n=30

S.No.	Days	Test	Mean	Standard deviation	Mean difference	Paired t test	Significance at 5% level
1	I day	Pre Test	8.49	0.57	0.57	4.25 S	29 df 2.042
	III day	Post Test	7.9	0.56			
2	III day	Post Test	7.9	0.56	1.1	6.23 S	29 df 2.042
	V day	Post Test	6.8	0.55			
3	I day	Pre Test	8.49	0.55	1.69	10.53 S	29 df 2.042
	V day	Post Test	6.8	0.57			

Table 9 shows that,

In the pre test mean tactile stimulation effectiveness in terms of physiological parameters score was 8.49 with standard deviation 0.57. On the third day , the post test score was 7.9 with standard deviation 0.56 , the mean difference was (0.57) normal and statistically significant. That is normal routine care was effective in improving the level of maturity among preterm babies. On the fifth day, the post test score was 6.8 with standard deviation 0.55.when

compare with the third day post test score, the mean difference (1.1) was high and statistically significant. That is the level of maturity of preterm babies were improving by normal routine treatment.

When we compare the pretest score with the fifth day post test, the mean difference was (1.69) and statistically significant. Hence the normal routine treatment was effective in improving the level of maturity among preterm babies in control group.

Section D

This section deals with the comparison of pre test and post scores of selected parameters among preterm babies between experimental and control group

Table 10: Comparison of selected parameters between experimental and control group using independent t test

Variables	Group	Test	Mean	Standard deviation	Mean difference	Independent t test	Significance at 0.05 level
Behavioural items	Exp	Pre test	8.46	1.50	0.03	0.76 NS	58 df 2.0
	Cont	Pre test	8.43	1.52			
Behavioural items	Exp	Post test	22.30	2.64	11.57	22.33 S	58 df 2.0
	Cont	Post test	10.73	0.94			
Physiological parameters	Exp	Pre test	8.43	0.68	0.06	0.19 NS	58 df 2.0
	Cont	Pre test	8.49	0.57			
Physiological parameters	Exp	Post test	4.43	0.75	2.37	17.03 S	58 df 2.0
	Cont	Post test	6.8	0.55			

NS : Not Significant S : Significant at 0.05 level

Table 10 shows that,

The pre test mean behavioural items score in the experimental group was 8.46 SD 1.50 and in the control group was 8.43 SD 1.52.the mean difference was low and statistically not significant .that is in the pre test both the groups are same.

In the post test mean behavioural items score in the experimental group was 22.30 SD 2.64 and in the control group was 10.73 SD 0.94.the mean difference was high and statistically significant. That is the tactile stimulation was effective than the normal routine treatment.

In the pre test mean physiological parameters score in the experimental group was 8.43 SD 0.68 and in the control group was 8.49 SD 0.57.the mean was low and statistically not significant. That is in the pre test both groups are same.

In the post test mean physiological parameters score in the experimental group was 4.43 SD 0.75 and in the control group was 6.8 SD 0.55.the mean difference was high and statistically significant. That is the tactile stimulation was effective than the normal routine treatment.

Section E

This section deals with the association between pre test score on selected parameters among preterm babies with their selected demographic variables

Table 12 shows the Association between physiological parameters of preterm babies with their selected demographic variables in experimental group.

SNo	Demographic Variables	Effect of tactile stimulation		X2	Table value	Significance at 5 % level
		Moderate	Severe			
		f	f			
1	Gender					
	a) Male	9	7	1.23	3.84 1 df	NS
	b) Female	5	9			
2	Gestational Age (in weeks)					
	a) 34 – 37 weeks	4	0			
	b) 32 – 34 weeks	6	5	7.42	5.99 2 df	S
	c) Less than 32 weeks	4	11			
3	Birth Weight					
	a) 1000 – 1300 grams	2	7			
	b) 1301 – 1700 grams	7	9	8.01	5.99 2 df	S
	c) 1701 – 2000 grams	5	0			

Table 12, depicts the association between the tactile stimulation with their selected demographic variables . There was significant association between tactile stimulation in relation to gestational age (x^2 =7.42, $p < 0.5$) and birth weight (x^2= 8.01, $p < 0.05$) , There was no significant association when compared to gender.

Behavioural items association with selected demographic variables

In the pre test all the preterm babies (30) , comes under the category of severe prematurity level. Hence association of behavioural items could not be calculated.

CHAPTER – V

DISCUSSION

The discussion chapter deals with sample characteristics and objectives of the study. The aim of this present study was to assess the effect of tactile stimulation on selected parameters among preterm babies in selected hospital at Nagercoil.

Objectives of the study

- To assess the pre test and post test level of selected parameters among preterm babies.
- To determine the effectiveness of tactile stimulation on selected parameters among preterm babies in experimental group.
- To find out the association between the pretest level of selected parameters of preterm babies and the selected demographic variables in experimental group.

Major findings of the study

To assess the pre test and the post test level of selected parameters among preterm babies.

The demographic variables of babies among preterm babies on experimental and control group such as gender, gestational age and birth weight.

Regarding gender 16(53.33 %) were males in experimental group and 13(43.33 %) in control group and 14(46.67 %) females in experimental group and 17(56.67 %) in control group.

Regarding Gestational age majority 15(50.00%) of babies in experimental were babies less than 32 weeks , 11(36.67) of babies in control group were between 32 – 34 weeks and 12(40.00%) of babies in control group and least 4(13.33%) in experimental group and 5(16.67%) in control group.

Regarding Birth weight 9(30.00%) less than 1000 – 1300 grams in experimental group and 8(26.67%) in control group and majority 16(53.33%) of babies between 1301 – 1700 grams in experimental group and 9(30.00%) in control group, and least 5(16.67%) in experimental group and 6(20.00) in control group were between 1701 – 2000 grams.

The findings shows that the pretest scores on behavioural items in experimental group 30 babies had severe prematurity, In post test 2 babies had severe prematurity and 26 babies had moderate prematurity and 2 babies had mild prematurity on day three and 7 babies had moderate prematurity and 23 babies attained mild prematurity on day five.

The findings shows that the pretest scores on behavioural items in control group 30 babies had severe prematurity in the pre test , In post test 21 babies had severe prematurity and 9 babies had moderate prematurity on day three and 16 babies had severe prematurity and 14 babies had moderate prematurity on day five.

The findings shows that in pretest scores on physiological parameters in experimental group 16 had severe prematurity and 14 had moderate prematurity in pre test , In post test 30 babies had moderate prematurity on day three and 10 babies had moderate prematurity and 20 babies had mild prematurity on day five.

The findings shows that the pretest scores on physiologic parameters in control group had 15 babies had severe prematurity and 15 had moderate prematurity. In post test 16 babies had severe prematurity and 13 babies had moderate prematurity on day three and 28 babies had moderate prematurity and 2 babies had mild prematurity on day five.

The second objective of the study is to determine **the effectiveness of tactile stimulation on selected parameters among preterm babies in experimental group**. In the pre test mean tactile stimulation effectiveness in terms of behavioural items score was 8.46 with standard deviation 1.50. On the third day , the post test score was 15.26 with standard deviation 2.87 , the mean difference was (6.80) high and statistically significant. That is tactile stimulation was effective in improving the level of maturity among preterm babies. On the fifth day, the post test score was 22.30 with standard deviation 2.64.when compare with the third day post test score, the mean difference (7.03) was high and statistically significant. That is the level of prematurity of preterm babies were improving by practicing the tactile stimulation.

In the pre test mean tactile stimulation effectiveness in terms of physiological items score was 8.43 with standard deviation 0.68. On the third day, the post test score was 7.23 with standard deviation 0.73, the mean difference was (1.20) high and statistically significant. That is tactile stimulation was effective in improving the level of maturity among preterm babies. On the fifth day, the post test score was 4.43 with standard deviation 0.75. when we compare with the third day post test score, the mean difference was (2.80) was high and statistically significant. That is the level of maturity of preterm babies were improving. Hence the tactile

stimulation was effective in improving the level of maturity among preterm babies .

The findings were supported by the study conducted by **Pasilicthilaka.,(2009)** on effect of tactile stimulation on weight ,heart rate ,feeding pattern ,sleeping time and crying spells among preterm babies. The result shows that the preterm babies who received the tactile stimulation achieved weight gain ($t = 4.01$), stable heart ($t = 12.5$), improved feeding pattern ($t = 21.69$), increased sleeping time ($t = 11.63$), decreased crying spells ($t = 10.25$) than control group ($p<0.005$). The study concludes that the tactile stimulation when administered to preterm babies , has a beneficial effect on growth and behavioural development.

Mann N.P. etal., (2009), study revealed that two treatment group gained significantly more weight compared to the control group. Thus it concludes massage therapy was beneficial in gaining weight in preterm babies.

Charpaketal .,(2008),The findings suggested that massage improved body fat deposition and, in turn, growth quality of preterm infants in a sex-specific manner.

Jyotiaroraetal., (2005), The results found that the preterm babies , who received tactile stimulation achieved weight gain, stable heart rate, improved feeding pattern , increased sleeping pattern, and decreased crying spells than control group . The study concludes that the tactile stimulation when administered on preterm babies , has a beneficial effect on growth anddevelopment.

Dabietal .,(2005), Thus the result of their study showed that massage therapy might enhance optimal physiological responses and behavioral

organization of premature infants Nsg staff in the NICU can use massage to promote the infant's capability to respond positively to his environment and to provide developmental support for healthy premature infants.

Salles et al .,(2005),The study revealed that the preterm neonates received light pressure and preterm neonates received moderate pressure exhibited greater weight gain and increased vagal tone and gastric motility during and immediately after treatment. Gastric motility and vagal tone during massage therapy were significantly related to weight gain.

Sloan ., (1994) , The result revealed that the stimulated neonates had average of 47% greater weight gain per day, and tactile/kinesthetic stimulation was a cost effective way to facilitating growth and sleep wake behaviour in very small preterm neonates.

FaranakAliabadi et al ., (2013) ,the study reveals that the tactile kinesthetic stimulation was effective in increasing the weight in low birth weight babies

Reza sacidietal., (2013), Hence the result showed that the daily massage with MCT oil in premature neonates is effective for weight gain without causing any complications.

To find out the association between the selected parameters of preterm low birth weight babies in pre test and the selected demographic variables.

The study shows that chi square was calculated to find out the association between the tactile stimulation with their selected demographic variables .significant association was found between tactile stimulation in relation to

gestational age (x^2 =8.08, $p < 0.5$) and birth weight (x^2= 8.24 , $p < 0.05$) , and no significant association when compared to gender.

In behavioural items the pre test score of all the babies (30) comes under the category severe prematurity level. Hence association of behavioural items could not be calculated.

The findings were supported by the study conducted by **Saumya John etal., (2005)**to assess the effectiveness of massage therapy on weight and sleep wake pattern among preterm infants. The study findings revealed that there is an association between the parameters with their selected demographic variables & Association between post test level of weight and selected demographic variables in experimental group gestational age x^2 = 15.75, condition of infant x^2 = 19.62 , type of feed x^2 = 7.81 & association between post test sleep wake pattern with selected demographic variables in experimental group gestational age x^2 = 15.75, condition of infant x^2 = 8.76 , type of feed x = 8.72.

CHAPTER – VI

SUMMARY,CONCLUSION, IMPLICATION RECOMMENDATIONSAND LIMITATIONS

The heart of the research lies in reporting the findings. The findings of the study has implications in the different branches of nursing profession. By assessing the effectiveness of tactile stimulation on selected parameters helps to improve the standards of nursing profession. This is the most creative and demanding part of the study. This chapter gives a brief account of the present study including the conclusion drawn from the findings , nursing implications of the study and recommendations.

This chapter deals with

- Summary of the study
- Conclusion
- Nursing Implication
- Recommendations
- Limitations

Summary of the study

The study was done to assess the effect of tactile stimulation on selected parameters among preterm babies.

The research design used for this study was Quasi experimental design. The research approach was Quantitative approach which was conducted in Kanyakumari Medical College Hospital at Nagercoil. Conceptual framework

adopted in the present study was Modified J.W. Kenny's Open System Model (1990). The sample size was 60 preterm babies.

The samples were selected by using convenient sampling method. The total samples were 60 preterm babies. 30 babies in the experimental group and 30 babies in the control group. Pre test was conducted by using Modified NeonatalBrazeltonNeuroBehavioural Assessment Scale for experimental & control group. Intervention of Tactile Stimulation was given to the preterm babies with 10ml of coconut oil for 15 minutes daily morning &evening for 5 days for experimental group. Post test was assessed on the 3rd and 5th day evening by using Modified NeonatalBrazeltonNeuroBehavioural Assessment Scale for samples in experimental& control group

The data was analyzed and tabulated using descriptive and inferential statistics.Paired 't' test , independent 't' test was used to assess the effectiveness of tactile stimulation and chi square test was used to find out the association between the effectiveness with their selected demographic variables among preterm babies.

Objectives of the study

- To assess the pre test and the post test level of selected parameters among preterm babies
- To determine the effectiveness of tactile stimulation on selected parameters among preterm babies in experimental group and control group.

- To find out the association between the selected parameters of preterm babies in pretest and the selected demographic variables

Major findings of the study

- ❖ Regarding gender 16(53.33 %) were males in experimental group and 13(43.33 %) in control group and 14(46.67 %) females in experimental group and 17(56.67 %) in control group.
- ❖ Regarding Gestational age majority 15(50.00%) of babies in experimental group and 13 (43.33 %) babies in control group were less than 32 weeks , 11(36.67) of babies in experimental group and 12 (40.00%) babies in control group were between 32 – 34 weeks and least 4(13.33%) in experimental group and 5(16.67%) in control group.
- ❖ Regarding Birth weight majority 16(53.33%) of babies between 1301 – 1700 grams in experimental group and in control group, 9 (30.00%) in experimental group and 8 (26.67%) in control group were between 1000 – 1300 grams and least 5(16.67%) in experimental group and 6(20.00)in control group were between 1701– 2000 grams.
- ❖ The pre test mean Neuro behavioural items score in the experimental group pre test mean was 8.46 , SD 1.50 and in the control group mean was 8.43 , SD 1.52. The mean difference was low and statistically not significant ,that is in the pre test both the groups are same. In the experimental group , the post test behavioural items score mean was 22.30 , SD 2.64 and in the control group mean was 10.73 , SD 0.94.the mean difference was high and statistically significant. That is the tactile stimulation was effective than the normal routine treatment.

- In the experimental group pre test physiological parameters score mean was 8.43 , SD 0.68 and in the control group mean was 8.46 , SD 0.57.the mean was low and statistically not significant. That is in the pre test both groups are same. In the experimental group post test physiological parameters score in the mean was 4.43 , SD 0.75 and in the control group mean was 6.8 , SD 0.55.the mean was high and statistically significant. That is the tactile stimulation was effective than the normal routine treatment.
- significant association was found between tactile stimulation in relation to gestational age (x^2 =8.08, $p < 0.5$) and birth weight (x^2= 8.24 , $p < 0.05$) , and no significant association when compared to gender in both experimental group and control group.

Conclusion

The study was done to determine the effectiveness of tactile stimulation on selected parameters among pre term babies . The mean score on behavioural items in experimental group was 8.46 SD 1.50 and post test was 22.30 SD 2.64 respectively. The mean score on physiological parameters in experimental group was 8.43 SD 0.68 and post test was 4.43 SD 0.75 respectively. it indicates the significant changes as a result of tactile stimulation upon each physiological parameters. The t value was significant at $p < 0.05$ level. From the results of the study , it is concluded that tactile stimulation was effective than normal routine care in improving the level of maturity among preterm babies. Therefore the

investigator felt that more importance should be given to tactile stimulation in collaboration with routine care on preterm neonates.

Nursing Implications

Preterm “fetal” neonate admitted in NICU is subjected to sensory experiences vastly different from those experienced in the womb. They require supportive care and interventional stimulation , simulating the intrauterine environment for their growth and development. The researcher has drawn the following nursing implications from the study which is of vital concern for nursing practice, nursing education , nursing administration and nursing research.

Nursing Practice

- Nurses can assume a novice to expert role by providing a teaching programme on tactile stimulation through using various improvised technology.
- Nurses can incorporate tactile stimulation with routine NICU care of preterm neonates.
- Nurses can inculcate the tactile stimulation technique , as evidence based practice for evaluating the massive developmental outcomes.

Nursing Education

- The nursing curriculum should be updated by including the topics like tactile stimulation.

- Nurse educator should ensure that the students learning importance of tactile stimulation and assessment of the effectiveness of tactile stimulation as an independent nursing intervention.
- Periodic conferences , seminars , workshops and symposiums can be arranged regarding tactile stimulation to make nursing professionals competent enough to meet their ever changing needs to the society.

Nursing Administration

- The nurse administrators should take more responsibilities to incorporate the importance of holistic care in new born care.
- The nurse administrator should explain the effectiveness of tactile stimulation to the staff nurses and motivating them to practice in the NICU.
- The nurse administrators should organize in service education programs on tactile stimulation for nurses.

Nursing Research

- Nursing researchers should be aware about the new trends and existing health care system .
- In future nursing research , if the number of samples and durations of stimulation will be increased , it may be rewarding to evaluate the efficacy of tactile stimulation.
- Practice evidence based nursing to maximize the optimum care for the clients .

Recommendations

- Similar study can be undertaken on a large sample.
- A comparative study can be performed to evaluate the effectiveness of tactile stimulation with other multi model stimulation.
- A comparative study can be conducted to evaluate the long term effect of tactile stimulation on preterm neonates.
- A similar study can be conducted to evaluate the effect of tactile stimulation on term infants.
- Management of low birth weight babies is sensitive to cultural norms and a comparative intercultural study is likely to bring out new insight in the present phenomena of interest.

Limitations

- The sample of the present study was drawn among the preterm low birth weight babies , therefore the results cannot be generalized in general population.
- The findings of the present study was applicable to stable preterm babies. Hence it cannot be generalized.

Summary

This chapter dealt with summary , conclusion , implications , recommendations and limitations.

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APPENDIX - A

Letter seeking expert's opinion for content validity

From

Ms. Ida divya sherly .E ,
M.Sc (N) IInd Year,
Nehru Nursing College,
Vallioor.

To,

Through

The Principal,
Nehru Nursing College,
Vallioor.

Respected Madam / Sir

Sub: Requesting opinion and suggestion for establishing content validity of Research Tool.

I would like to bring to your kind consideration that as a part of my M.SC (N) II Year curriculum, I have selected the below mentioned topic for dissertation to be submitted to the Tamilnadu Dr. MGR Medical University, Chennai as a partial fulfilment of the degree of Master Science in Nursing. My Research topic is **"A study to assess the effect of Tactile stimulation on selected parameters among preterm babies in selected hospital at Nagercoil "** With regard I kindly request you to validate my tool for its appropriateness and relevancy. I am enclosing need for study statement of the problem, objectives, clinical variables, BNBAS. I humbly request you to kindly validate the tool and give your valuable suggestions.

Thanking you

Place: Yours Sincerely

Date: **Ida Divya Sherly. E**

APPENDIX – B

List of experts for content validity of research tool

1. **Dr. Lakshmi, MBBS, DCH.**
   Director
   Lakshmi Child Care Centre
   Sucheendram ,
   Kanniyakumari Dist.

2. **Prof. Malchijah , M.Sc (N),**
   Department of Child Health Nursing,
   C S I Christian College of Nursing,
   Neyyoor ,
   Kanyakumari District.

3. **Mrs. Premalatha , M.Sc (N),**
   Assistant Professor of Child Health Nursing,
   C S I Christian College of Nursing,
   Neyoor,
   Kanyakumari dist.

   Mrs. Jascintha, M.Sc (N)
   Associate Professor of Child Health Nursing,
   St Xaviers Catholic College of Nursing,
   Chunkankadai ,
   Kanyakumari dist.

   Mrs. Sarala mary, M.Sc (N),
   Associate Professor of Child Health Nursing,
   St Xaviers Catholic College of Nursing,
   Chunkankadai ,Kanyakumari district

APPENDIX – C

Copy of letter seeking and granding permission to conduct the research study in Government Medical College Hospital Nagercoil.

From

Ida divya sherly.E
IInd Year M.Sc.,N,
Nehru Nursing College,
Vallioor.

To

The Dean,
Government medical college hospital,
Nagercoil .

Through

The Principal, Nehru Nursing College,
Vallioor.

Respected Mam,

Sub: Requisition for conducting the research study- E. Ida divya sherly M.Sc (N) II year student.

As a part of the curriculum requirement under the Tamilnadu Dr. M.G.R. Medical University, our M.Sc (N) II year student I**da Divya Sherly.E** would like to conduct a research during her course of study. She has selected the following topic for research "**A study to assess the effect of Tactile stimulation on selected parameters among preterm babies in selected hospital at nagercoil "** As we would like to conduct the research in government medical college hospital nagercoil, among the preterm babies, we kindly request you to grant her permission to conduct the study in your esteemed hospital. I assure that she will abide by the policies of the hospital and not cause any disturbance to the routine work. Kindly consider and grant permission for the above mentioned study the period from August to September 2015.

Thanking you,

Vallioor Yours faithfully,

Date

TOOL

DEMOGRAPHIC VARIABLES OF BABIES

1) GENDER

a) Male

b) Female

2) GESTATIONAL AGE IN WKS

a) 34 Weeks or more

b) 32 – 34 Weeks

c) Less than 32 Weeks

3) BIRTH WEIGHT (gms)

a) 1000 – 1300

b) 1301 –1700

c) 1701 – 2000.

SECTION B

Modified Brazelton Neonatal Neuro Behavioural Assessment Scale

S NO	ASSESSMENT	SCORE	I DAY	III DAY	V DAY
1	**BEHAVIOURAL ITEMS** **HABITUATION** No response Response decrement to light Response decrement to rattle Response decrement to pain	 0 1 2 3			
2	**CRY** No response Weak cry Whispering Strong cry with normal tone	 0 1 2 3			
3	**PASSIVE MOVEMENTS OF ARMS**. No response to extension and recoil Little response to extension and weak recoil Moderate and modulated response to extension and good recoil	 0 1 2			

	Hypertonic resistance to extension and recoil with over shooting	3			
4	**PASSIVE MOVEMENTS OF LEGS** No response to extension and recoil Little response to extension and weak recoil Moderate and modulated response to extension and good recoil Hypertonic resistance to extension and recoil with over shooting	0 1 2 3			
5	**SLEEP PATTERN** Regular quiet sleep Irregular quiet sleep Active Very active	0 1 2 3			
6	FEEDING PATTERN No response Poor feeding Weak and dis coordinated Strong and coordinated .	0 1 2 3			

7	NEURO ITEMS SUCKING REFLEX No sucking movement at all Weak sucking Modulated rhythmic sucking Exagerrated obligatory sucking	 0 1 2 3			
8	ROOTING REFLEX No response Weak response Modulated response Exaggerated response	0 1 2 3			
9	MORO REFLEX No response Weak response Modulated response Overly brisk response	0 1 2 3			
10	BABINSKI REFLEX No reaction Weak response Modulated response Overly brisk response	0 1 2 3			

SCORING KEY

0 – 10 - SEVERE PREMATURITY

11 - 20 - MODERATE PREMATURITY

21 – 30 - MILD PREMATURITY

ACKNOWLEGDEMENT

"Humble Yourself In The Sight Of the Lord, and He will lift You Up"

Though only my name appears on the cover of this dissertation, a great many people have contributed to its production. I owe my gratitude to all those people who have made this dissertation possible and because of whom my graduate experience has been one that I will cherish forever.

My deepest gratitude is to my God Almighty for His grace and close presence, which strengthened me and sustained interest throughout this project.

I extended my heartfelt thanks to the Chairman, **Mr.Kanoji, B.Sc.,** and the Deputy Chairman, **Mr.Vinoji, B.A.,** of Nehru Nursing College, Vallioor for providing an opportunity to promote my professional life.

I have been amazingly fortunate to have our beloved Principal**, Dr.S. Margaret Ranjitham M.Sc.,N,Ph.D.,** Nehru Nursing College, Vallioor who gave me the freedom to explore on my own, and at the same time the guidance to recover when my steps faltered. Her patience and support helped me overcome many crisis situations and complete this dissertation.

I convey my thanks to our beloved Vice principal, **Dr.S.Chandra Sekharan M.Sc,NPh.D.,** Nehru Nursing College, Vallioor who has been always there to listen and give advice. I am deeply grateful to him for the long discussions that helped me sort out the technical details of my work.

My special words of thanks should always go to my research guide,. **Prof. Mrs. Baby Uma., M.Sc. N.,H.O.D Child Health Nursing**, Nehru Nursing College**,**Vallioor. for always being so kind, helpful and motivating. She has taught me another aspect of life, that, "Goodness can never be defined and good human beings can never be denied". She has always been there for me with her motherly hand whenever I needed it the most. Her constant guidance, cooperation and support have always kept me going ahead. I owe a lot of gratitude to her for always being there for me and I feel privileged to be associated with a person like her during my life.

It is my duty to extend my sincere thanks to my class coordinator **Prof.Mrs. Baby Uma. M.Sc.,N,** for insightful comments and constructive criticisms at different stages of my research were thought-provoking and they helped me focus my ideas. I am grateful to her for holding me to a high research standard and enforcing strict validations for each research result, and thus teaching me how to do research.

It is my duty to extend my sincere thanks to **Mrs.Sharley, M.sc.(N),** Child Health Nursing for her enthusiasm, constant support and guidance for this project.

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thanks to **Dr.Vadivel Murugan, MBBS.,MD, DEAN., GMCH, Asaripallam,** for his help and valuable suggestions for conducting my study.

I extend my great thanks to our **tool validators** for their valuable suggestions. I extent my great thanks to **Mr. Anto Paulin Brinto, M.Sc., M.Phil, Statistician** for the valuable suggestion and analysis and presentation of data.

I extend my thanks to **Mrs. Nambi**, Librarian of Nehru Nursing College, Vallioor for her help in providing books, journals and literature for my study.

I would like to acknowledge the people who mean world to me, my parents and brother. I extend my respect to my parents, grandparents and all elders to me in the family. I don't imagine a life without their love and blessings. Thanks to my beloved mother **Mrs. Jansi Ebenezer.S**, **&** Husband Mr.**Muthu Kumar** showing faith in me and giving me liberty to choose what I desired. I consider myself the gifted in the world to have such a supportive family, standing behind me with their love and support.

I would like to extend my thanks to all my colleagues, friends, well wishers and my family members for their moral support and motivation, which drives me to give my best and the successful completion of the study.

Investigator

ABSTRACT

A Study to assess the effect of tactile stimulation on selected parameters among preterm babies in selected hospital at Nagercoil.

Objectives of the study

- To assess the pretest and posttest level of selected parameters among preterm babies .
- To determine the effectiveness of tactile stimulation on selected parameters among preterm babies in experimental group.
- To find out the association between the post test level of selected parameters among preterm babies and the selected demographic variables in experimental group.

Hypotheses:

➢ **H1** – There is significant effect of tactile stimulation on selected parameters among preterm babies who received tactile stimulation than those preterm babies who did not receive tactile stimulation.

H2 – There is significant association between the pretest level of selected parameters among preterm babies and the selected demographic variables in experimental group.

Review was done on tactile stimulation on improving the level of maturity among preterm babies. The conceptual framework for this study was based on

Modified J.W Kenny's Open System Model. Research design for the study was quasi experimental – non equivalent , control group design convenient sampling technique was used and the sample size was 60 with 30 samples in experimental group and 30 in control group. Modified Neonatal Behavioural Assessment Scale by Brazelton was used to assess the effect of tactile stimulation before and after intervention.

Major findings of the study

The results shows that the mean score on behavioural items in experimental group during pre test was 8.46, SD 1.50 and post test was 22.30, SD 2.64 respectively. The mean score on physiological parameters in experimental group during pre test was 8.43 ,SD 0.68 and post test was 4.43 ,SD 0.75 respectively. The t value was significant at $p < 0.05$ level and so the research hypotheses was accepted. The researcher concluded that tactile stimulation was effective than normal routine care in improving the level of maturity among preterm babies. There was significant association found between pretest level of selected physiological parameters and in relation to gestational age ($x^2 = 8.08$, $p < 0.5$) and birth weight ($x^2 = 8.24$, $p < 0.05$) , and no significant association between physiological parameters and gender in experimental group.

Conclusion

As prematurity is the leading cause of newborn deaths and second leading cause of death in children under the age of 5, it is necessary to improve the level of maturity and promote growth and development. The findings of the study indicated that the tactile stimulation is a cost effective intervention.

Based on the findings of the study recommendations for future study are as follows:

- The study can be replicated with large sample size.
- A comparative study can be performed to evaluate the effect of tactile stimulation with other multi model stimulation.
- A comparative study can be conducted to evaluate the long term effect of tactile stimulation on term infants.
- Management of low birth weight babies is sensitive to cultural norms and a comparative intercultural study is likely to bring out new insight in the present phenomena of interest.

APPENDIX - A

Letter seeking expert's opinion for content validity

From

Ms. Ida divya sherly .E ,
M.Sc (N) IInd Year,
Nehru Nursing College,
Vallioor.

To,

Through

The Principal,
Nehru Nursing College,
Vallioor.

Respected Madam / Sir

Sub: Requesting opinion and suggestion for establishing content validity of Research Tool.

I would like to bring to your kind consideration that as a part of my M.SC (N) II Year curriculum, I have selected the below mentioned topic for dissertation to be submitted to the Tamilnadu Dr. MGR Medical University, Chennai as a partial fulfilment of the degree of Master Science in Nursing. My Research topic is **"A study to assess the effect of Tactile stimulation on selected parameters among preterm babies in selected hospital at Nagercoil "** With regard I kindly request you to validate my tool for its appropriateness and relevancy. I am enclosing need for study statement of the problem, objectives, clinical variables, BNBAS. I humbly request you to kindly validate the tool and give your valuable suggestions.

Thanking you

Place: Yours Sincerely

Date: **Ida Divya Sherly. E**

APPENDIX – B

List of experts for content validity of research tool

1. **Dr. Lakshmi, MBBS, DCH.**
   Director
   Lakshmi Child Care Centre
   Sucheendram ,
   Kanniyakumari Dist.

2. **Prof. Malchijah , M.Sc (N),**
   Department of Child Health Nursing,
   C S I Christian College of Nursing,
   Neyyoor ,
   Kanyakumari District.

3. **Mrs. Premalatha , M.Sc (N),**
   Assistant Professor of Child Health Nursing,
   C S I Christian College of Nursing,
   Neyoor,
   Kanyakumari dist.

4. **Mrs. Jascintha, M.Sc (N)**
   Associate Professor of Child Health Nursing,
   St Xaviers Catholic College of Nursing,
   Chunkankadai ,
   Kanyakumari dist.

5. **Mrs. Sarala mary, M.Sc (N),**
   Associate Professor of Child Health Nursing,
   St Xaviers Catholic College of Nursing,
   Chunkankadai ,Kanyakumari district

APPENDIX – C

NEHRU NURSING COLLEGE

G.O.(MS) NO. 486 HEALTH DATED ON 27.8.98

THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY PROC. NO.:18677/AFFLN.II(1)/99 Dated on 28.9.2000.

APPROVED BY TAMIL NADU NURSES AND MIDWIVES COUNCIL AND INDIAN NURSING COUNCIL

NEHRU NAGAR, POST BOX NO. 3,
TIRUCHENDUR ROAD, ***VALLIOOR - 627 117.***
TIRUNELVELI DIST, TAMILNADU.

Email : nehrunursingcollege@gmail.com
Tel : 04637 - 221460, 222126
Teli Fax : 04637 - 221460

Your Ref :

Date :17/07/2015

Our Ref :

To,
The Dean,
Kanyakumari Government Medical College And Hospital,
Asaripallam;Nagercoil.

Sub: Requisition for conducting the research study- E.Ida Divya Sherly , M.Sc (N) IIyear student.

Respected sir,

As a part of the curriculum requirement under the Tamilnadu Dr. M.G.R. Medical University, our M.Sc (N) II year student E.Ida Divya Sherly would like to conduct a research during her course of study. She has selected the following topic for research,

A STUDY TO ASSESS THE EFFECT OF TACTILE STIMULATION ON SELECTED PARAMETERS AMONG PRETERM LOW BIRTH WEIGHT BABIES IN SELECTED HOSPITALS AT NAGERCOIL.

As we would like to conduct the research in Kanyakumari Government Medical College And Hospital, Asaripallam, We kindly request you to grant her permission to conduct the study in your esteemed hospital. I assure you that she will abide by the policies of the hospital and not cause any disturbance to the routine client care. Kindly consider and grant permission for the above mentioned study purpose during the month of August 1st to 31st 2015.

Thanking you,

Yours faithfully,

Nehru Nursing College
Principal

Vallioor,
Date:

NEHRU NURSING COLLEGE Vallioor

To get the opinion of the HOD i/c & Guide & the principal

23/7/15

APPENDIX – D

Section : A

TOOL

DEMOGRAPHIC VARIABLES OF BABIES

1) GENDER

a) Male

b) Female

2) GESTATIONAL AGE IN WKS

a) 34 Weeks or more

b) 32 – 34 Weeks

c) Less than 32 Weeks

3) BIRTH WEIGHT (gms)

a) 1000 – 1300

b) 1301 –1700

c) 1701 – 2000.

Section : B

PHYSIOLOGICAL PARAMETERS

S NO	PHYSIOLOGICAL PARAMETERS	SCORE	I DAY	III DAY	V DAY
1	TEMPERATURE				
	a) 36 – 36.5 C	1			
	b) 32 – 36 C	2			
	c) Below 32 C	3			
2	RESPIRATION RATE				
	a) 30 - 40 breaths / mt	1			
	b) 40 – 70 breaths / mt	2			
	c) 71 – 80 breaths / mt	3			
3	OXYGEN SATURATION				
	a) Above 98 %	1			
	b) 94 % - 97 %	2			
	c) 91 % - 93 %	3			
4	HEART RATE				
	a) 140 - 160 beats / mt	1			
	b) 160 – 170 beats / mt	2			
	c) 170 – 180 beats / mt	3			

SCORING KEY

1 – 4 MILD PREMATURITY
5 – 8 MODERATE PREMATURITY
9 – 12 SEVERE PREMATURITY

Section : C

Modified Brazelton Neonatal Neuro Behavioural Assessment Scale

S NO	ASSESSMENT	SCORE	I DAY	III DAY	V DAY
1	**BEHAVIOURAL ITEMS** **HABITUATION** No response Response decrement to light Response decrement to rattle Response decrement to pain	 0 1 2 3			
2	**CRY** No response Weak cry Whispering Strong cry with normal tone	 0 1 2 3			
3	**PASSIVE MOVEMENTS OF ARMS**. No response to extension and recoil Little response to extension and weak recoil Moderate and modulated response to extension and good recoil	 0 1 2			

	Hypertonic resistance to extension and recoil with over shooting	3			
4	**PASSIVE MOVEMENTS OF LEGS** No response to extension and recoil Little response to extension and weak recoil Moderate and modulated response to extension and good recoil Hypertonic resistance to extension and recoil with over shooting	0 1 2 3			
5	**SLEEP PATTERN** Regular quiet sleep Irregular quiet sleep Active Very active	0 1 2 3			
6	FEEDING PATTERN No response Poor feeding Weak and dis coordinated Strong and coordinated .	0 1 2 3			

7	NEURO ITEMS SUCKING REFLEX No sucking movement at all Weak sucking Modulated rhythmic sucking Exagerrated obligatory sucking	 0 1 2 3			
8	ROOTING REFLEX No response Weak response Modulated response Exaggerated response	0 1 2 3			
9	MORO REFLEX No response Weak response Modulated response Overly brisk response	0 1 2 3			
10	BABINSKI REFLEX No reaction Weak response Modulated response Overly brisk response	0 1 2 3			

SCORING KEY

0 – 10 - SEVERE PREMATURITY

11 - 20 - MODERATE PREMATURITY

21 – 30 - MILD PREMATURITY

CHAPTER – I

INTRODUCTION

"The highest ideal of cure is the speedy, gentle, and enduring restoration of health by the most trustworthy and least harmful way."

- Samuel Hahnemann

Children constitute the most important and vulnerable segment of our population,they are truly the foundation of our nation .Hence the focus of every citizen should be to promote their health and safeguard their interests. So every unborn child should be allowed to achieve his /her optimal growth and development potential,So that they can effectively contribute towards nation's productivity ,the future of our nation depends on the way in which we nurture our children today**.(Park .K)**

The physiological parameters depict a higher deviation from normal findings for those infants who are low birth weight and other higher risk, babies have greater than average chance of morbidity and mortality, because of the conditions or circumstances superimposed on the normal course of events associated with birth and extrauterine existence and sometimes result in lifetime of disability**.(Ghai.O.P)**

Preterm low birth weight neonates are more prone for **chronic lung disease, pneumonia, apnoea and bradycardia, infection, jaundice, intraventricular hemorrhage (IVH), inability to maintain body temperature, immature gastrointestinal and digestive system, anaemia, patent ductusarteriosus (PDA), retinopathy of prematurity (ROP),necrotizing enterocolitis (NEC)**and **sepsis.** Weight loss is the most common complication of

preterm neonates with low birth weight. The physical and mental well being of an individual depends on the correct management events in the prenatal period. Various modalities of treatments are available for improving the weight of neonates. Massage therapy is one among the alternative therapies for weight gain**.(Wong's)**

Touch has the unique effects on the human organism, All babies including smallest and sickest, need loving human contact, research showed that when premature or low birth weight babies receive routine care in the hospital, their pulse rate increase, their oxygen levels decrease indicating distress, when they are massaged, however the opposite occur in their pulse rate come down to stable and their oxygen levels rise ,suggesting that they found massage is calming and soothing**.(Gupta .P)**

Touch is the primary means of learning about the world throughout infancy. Touch and massage are very nurturing and they are specially helpful for babies who have had repeated medical intervention. Therapy begins with and containment with the hands followed by stroking of any body areas that may have endured painful stimulus. In an area when health care protocols and costs are heavily scrutinized and preventive care is more strongly emphasized, the implications of low-intervention Touch Therapy should not be neglected. The sleeping pattern of the normal new born is approximately 21-22hr per day and in preterm babies the sleeping pattern is approximately 22-23hr per day in 24hr.Preterm babies sleep more than normal babies as they are less active and alert**.(Fredrick)**

Touch therapy is the manipulation of the body's soft tissue for the purpose of normalizing those tissues. Massage affects the whole body to decrease muscular tension and flaccidity in musculoskeletal system, Moreover it increases blood flow in circulatory system, flow of lymph in lymphatic system, it stimulates or sedates the nervous system and enhance tissue healing in skin .As such massage therapy has been recommended as an intervention to promote growth and development of preterm and low-birth weight neonates.(Basavanthappa B.T)

Massage therapy has been practiced worldwide for centuries. Newborn massage has been practiced in India and many countries since ancient days. The traditional art is now becoming popular as a therapy. As it provides greater advantages it can be practiced by parents as well as medical professionals.(Boner.A.L)

The massage can be given by both mother or trained professionals. Massage therapy is a safe, inexpensive treatment modality for healthy, preterm newborn when used in conjunction with traditional medicine, it may offer benefits of growth and development for newborn, and lead to shorter hospital stays in transitional care nursery. It is not only preterm neonates who may benefit from massage full term, infants may benefit too. (Marlow)

Neonatal nurses have a vital role to play in enabling health promotion of preterm with low birth weight babies through massage therapy. Massage therapy is one of the effective way by which the health promotion of the preterm with low birth weight babies can be achieved in terms of increasing weight and no adverse

effects have been reported when infant massage is done properly after careful instruction.

NEED FOR THE STUDY

"It is through our hands that we speak to the child and communicate. Touch is the child's first language , understanding come long after feeling."

Pre term babies are babies born too soon. Doctor calls them pre-term or premature babies because they have not had their full term of 38-42 week in the mother womb. A preterm infant is usually defined as a live-born infant born before the end of weeks 37 of gestation: another criterion used is a weight of less than 2500g at birth. Pre-maturity accounts for the largest number of admission to an NICU. The actual cause of pre-maturity is not known in most instances. The incidence of pre-maturity is lowest in the middle to high socioeconomic classes and highest in the lower socioeconomic class **.K.Park.,(1997)**

Most preterm babies lose weight during the first 3to4 days of life and loss is up to a maximum of 10 to 15% of the birth weight. The weight remains stationary for the next 4 to 5 days and then the babies start gaining at a rate of 1.0 to 1.5% of body weight per day. They regains their birth weight by the end of second week of life. Excessive weight loss delay in regaining the birth weight or slow weight gain suggest that either the baby is not being fed adequately or he is unwell and needs immediate attention**. Peters.,(2012)**

Worldwide over the past 20-30 yrs the incidence of preterm birth in most developed countries has been about 5-7% of live birth. Preterm birth occurs in approximately 7% of live birth of Caucasian infant. In African American infants,

the rate is doubled to approximately 14%. In the world 10% of all white babies were born pre-maturely and 20% of all black babies are born prematurely. **Steptoe.,(2011)**

According to WHO every year an estimated of 15 million babies are born preterm, and this number is rising. Almost 1 million children die each year due to complications of preterm birth. More than 60 % of preterm births occur in South Asia.

"Neonatal deaths account for 40% of all death of children under five". Death rates during the neonatal period (from birth to 28 days old) also reveal differences between rich and poor countries. Only 1% of all neonatal death occur in high income countries, where the neonatal mortality rate averages 4/1,000 live birth. In low-income countries, the average is about 33/1,000 live birth. The majority of neonatal death occur in south Asia because of its sizable population however 20 of the countries with the highest neonatal mortality rate are in sub-sahara Africa. Neonatal mortality rates exceed 50/1,000 live birth in Ethiopia, Liberia and Sierra Leone. **WHO(2012)**

According to the world health organization (WHO) neonatal causes of death were infections (34%) asphyxia (28%) Problems linked with preterm birth (23%). Preterm birth causes one-third of all infant deaths premature birth was the underlying cause of nearly twice as many infant deaths than previously estimated, according to a new analysis by researchers at the U.S. Center for Disease Control and Prevention**.(WHO 2013)**

In India the infant mortality rate in low and middle-income countries was approximately 88/1,000 live birth. Of these 28 death occurred in the early

neonatal period, the first week of life. The rate of early neonatal death hardly diminished, declining only to 25/1,000 live births in 2000. In most developing countries, neonatal mortality was 38/1,000 live birth compared to 6/1,000 in developed countries. The Nation's infant mortality rate in 2005 to is 6.9% from 6.8% in 2004.**Sharma .S.K.,(2004)**

Today the National center for Health statistic released final birth data for 2005 showing that the preterm birth rate is continuing its relentless rise with more than 525,000 babies or 12.7% born prematurely. That up from 12.5% in 2004 and the 2006 preliminary report indicates that the preterm birth rate will continue its upward trend and reach 12.8% about 543,000 babies. The preterm birth rate has increased more than 20% since 1990. About 10 to 12% of Indian babies are born preterm (less than 37 completed weeks) as compared to 5 to 7% incidence in the west. The statistic birth rate of preterm babies is approximately 140 per years in Vanivilas Hospital Bangalore, Karnataka**. Udani.R.H.,(2004)**

In India the rate of preterm births is rising and presently around 21 % .prematurity is the leading cause of newborn deaths and the second leading cause of death after pneumonia in children under the age of 5.India is the biggest contributor to the world preterm burden, with almost 36 million premature births accounting for 23.6% of the around 15 million global preterm births reported each year, of these 13 % are live preterm births. **CSSM.,(2010)**

According to India's survey report 2010,greatest numbers of preterm births occurred in India about 13% (35.19 lakh) of all births were pre-term. And nearly 35% of global pre-term babies were born in India. Most preterm neonates lose weight during the first 3 to 4 days of life and loss is up to a maximum of 10

to 15% of the birth weight. The weight remains stationary for the next 4 to 5 days and then the babies start gaining at a rate of 1.0 to 1.5% of body weight per day. They regain their birth weight by the end of second week of life. Excessive weight loss delay in regaining the birth weight or slow weight gain suggested that either the baby is not being fed adequately or he is unwell and needs immediate attention. Massage therapy helps in increasing weight in premature babies**.(Varma 2010)**

Nearly 24 % that is one in four children born prematurely across the globe in 2010 were in India. India recorded the highest number of preterm babies. Almost 13 % of all children born in India were born too soon**. Lancet.,(2015)**

China recorded the preterm birth rate of 7.8% of the global count with 11.72 lakh children born preterm. china recorded 23 lakh fewer preterm births than india. **Field.,(2013)**

60 % of premature babies born in South Asia and Africa ,but this is not just a problem of the poorest nations :the USA (517,000 Preterm births) and Brazil (279300) ranked among the top 10 countries with the highest number of premature births in 2010.**Christopher 2010.**

The countries with the highest numbers of preterm births are India(35.19 lakh),China(11.7 lakh),Nigeria(7.7 lakh),Pakistan (7.48 lakh),Indonesia(6.75 lakh),US (5.17 lakh),Bangladesh(4.24 lakh),Brazil (2.79).

In tamilnadu the prevalence of preterm birth varies from 33-38% and that of low birth weight less than 2500 g (10-50 %). The infant mortality rate has shown a consistent decline from 110/1000 to 75/1000, but has stagnated since then.

A study was conducted on tactile stimulation effects on preterm neonate among 20 preterm neonate (mean gestational age, 31 weeks; mean birth weight 1.280g, mean time in neonatal intensive care unit 20 days) during transitional nursery care, to assess their growth and sleep wake behavior. Brazelton scale was used to assess the neonates. The tactile stimulation consisted of body stroking and passive movement of the limbs for three 15 min period per day for 10 days. The result revealed that the stimulated neonates had an average of 47% greater weight gain per day. The neonates were more active and alert during sleep/wake behavior observation, and showed more matures habituation, orientation motor, and range of state behavior on the Brazelton scale than control group infants. Finally their hospital stay was 6 days shorter. These data suggest that tactile stimulation may be a cost effective way of facilitating growth and behavior organization even in very small preterm neonates.

As above mention review and investigator experience suggest that preterm neonates who received massage therapy are more active, alert and spent less time sleeping during day time improved breast feeding and increased in vagal activity during massage may lead to increased gastric motility which may contribute to more efficient food absorption and thus lead to increase in weight in preterm babies. As touch become increasingly popular, there is a need to provide an opportunity for health care professionals to learn more and exchange the most updated knowledge in touch therapy. So investigator felt the need to carry out a study on tactile stimulation on selected parameters among preterm babies.

Statement of the problem

A Study to assess the effect of tactile stimulation on selected parameters among preterm babies in selected hospital at Nagercoil.

Objectives of the study

- To assess the pretest and posttest level of selected parameters among preterm babies .
- To determine the effectiveness of tactile stimulation on selected parameters among preterm babies in experimental group.
- To find out the association between the pretest level of selected parameters of preterm babies and the selected demographic variables in experimental group.

Hypothesis:

- **H1** – There is significant effect of tactile stimulation on selected parameters among preterm babies who received tactile stimulation than those preterm babies who did not receive tactile stimulation.
- **H2** – There is significant association between the pretest level of selected parameters among preterm babies and the selected demographic variables in experimental group.

Operational definition.

1)Selected Parameters: In this study selected parameters refers to the changes in

i. **Physiological parameters** such as temperature, heart rate, respiration and oxygen saturation.

ii. **Neuro Behavioural Items:**

Behavioural items such as habituation, cry, passive movements of arms, passive movements of legs, sleeping pattern, feeding pattern.

Neuro items include sucking reflex, rooting reflex, moro reflex, babinski reflex as measured by Modified Neonatal Neuro Behavioural Assessment Scale by Brazelton.

2)Tactile Stimulation: In this study tactile stimulation refers to moderate pressure and light pressure strokes from the head to foot with 10 ml of warm coconut oil daily morning and evening for the duration of 15 minutes.

3) Preterm Babies: In this study Preterm Babies refers to baby born before 37 completed weeks of gestation and weight between 1- 2 kilograms.

4)Effectiveness : In this study Effectiveness refers to the significant change in the selected parameters after the administration of tactile stimulation as measured by Modified Neonatal Neuro Behavioural Assessment Scale by Brazelton.

Delimitations

1. The study is delimited to preterm babies only.
2. The study is delimited to tactile stimulation only.

Assumption

1. Massage therapy may change the effect of selected parameters among babies.
2. Parents may give their consent to massage therapy on their babies.
3. Body massage might be used as an effective and safe non medical intervention for increasing weight gain velocity in preterm babies.

Variables

Independent Variables

Tactile Stimulation.

Dependent Variables

i. **Selected Physiological parameters** such as temperature, respiration, oxygen saturation, heart rate.

ii. **Neuro Behavioural Items**

Behavioural items such as habituation, cry, passive movements of arms, passive movements of legs, sleeping pattern, sucking and feeding pattern .

Neurological items such as sucking reflex, rooting reflex ,moro reflex, babinski reflex .

Demographic Variables

Demographic variables of Babies – Gender, Gestational age in weeks, Birth weight

CONCEPTUAL FRAMEWORK

The conceptual framework is comprised of interrelated concept that explains a natural phenomenon.

The study is designed to assess the effect of tactile stimulation on selected parameters among weight babies .The conceptual model for this study is based on modification made on J.W.KENNY'S OPEN SYSTEM MODEL.

This theory was introduced by Jennet .W. Kenny .she was born in the year 1946 at Scotland. The open system model was formulated in the year 1999. The open system model enumerates various aspects of system and interaction. The open system model is a continuous model which interacts with the environment. An open system should be contrasted with the concept of an isolated system which exchanges neither energy and matter nor information with its environment.

The model consists of 3 components

1.Input

2. Through put

3.Output

Input:

Based on Modified J.W Kenny's Open System Model input can be matter, energy and information from the environment on present study. Environment refers to hospital and input refers to assess the selected parameters includes the Physiological items such as temperature, respiration rate, oxygen saturation and heart rate. Behavioural items such as habituation, cry, movement of arms,

movement of legs, sleeping pattern, feeding pattern. Neuro items such as sucking reflex, rooting reflex, moro reflex, babinski reflex. Assessed by Modified Neonatal Neuro Behavioural Assessment Scale by Brazelton.

Throughput:

According to J.W Kenny, the matter, energy and information are continually processed through the system, which is also called complex transformation known as throughput process (i.e) energy and information for the maintenance of homeostasis of the system. In the present study process includes practicing tactile stimulation with 10 ml warm coconut oil for 5 days.

Output:

J.W. Kenny's noted after processing the input and throughput, the system returns to the output matter, energy, information to the environment in an altered state. Change is a feature of the process that is observable and measurable as output which should be different from that which is entered into the system. In the present study, the output is significant effect on selected parameters among preterm babies.

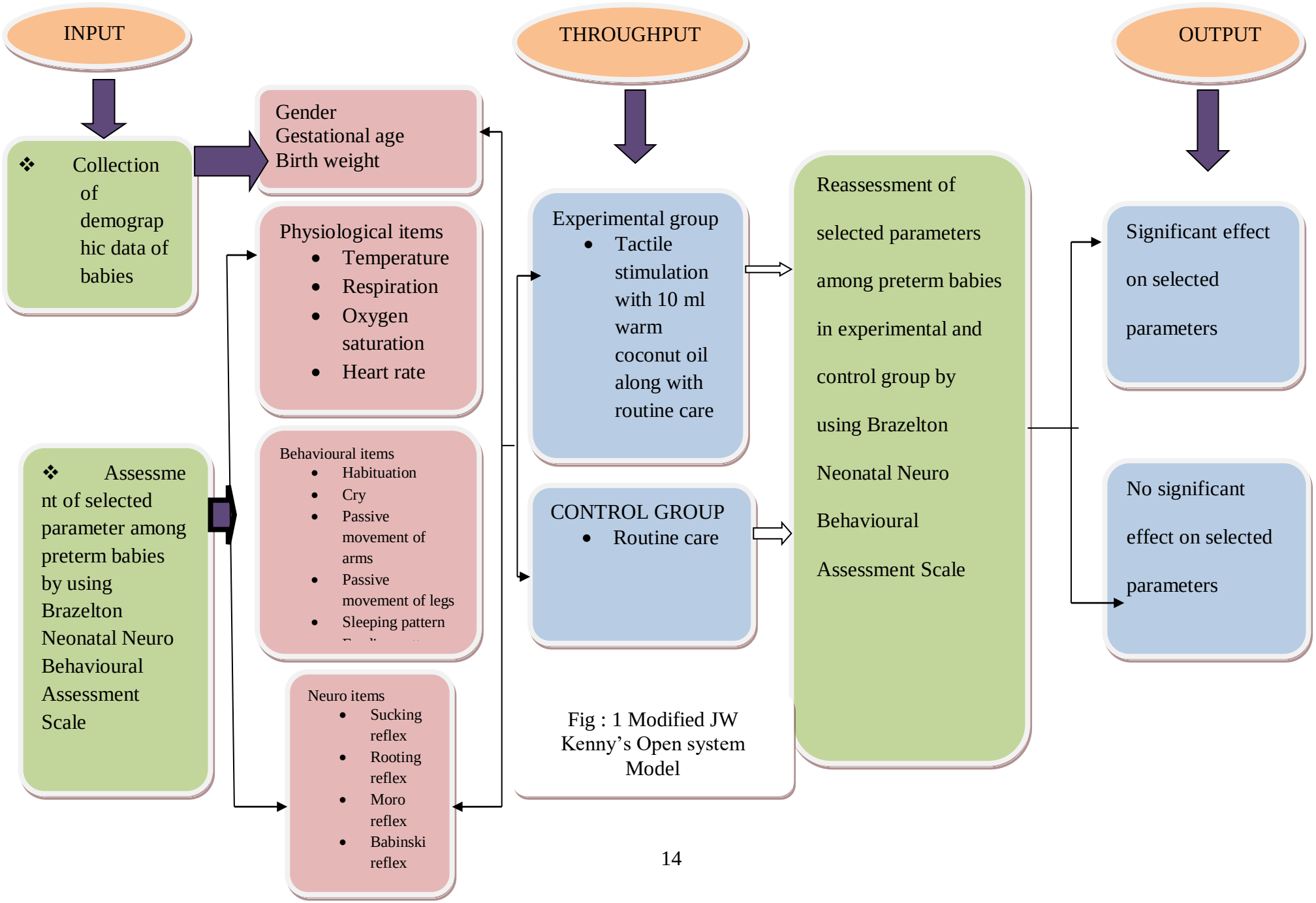

Fig : 1 Modified JW Kenny's Open system Model

CHAPTER – II

REVIEW OF LITERATURE

According to polit and hungler the task of reviewing research literature involves the identification, selection, critical analysis and written description of existing information related literature which one received is described under the following headings. It includes

a) Literature related to physiology of touch and benefits of body massage

b) Studies related to the need for tactile stimulation on preterm babies

c) Studies related to the effect of tactile stimulation on preterm babies.

a) Literature related to physiology of touch and benefits of body massage

Diana Moore,(2010).,documented that the most important benefit of massaging premature baby is that it helps child to bond ,which is especially important, if he has spent the first days of his life in an incubator. Massage can increase weight gain, enhance growth and development, improve digestion and metabolism, encourage greater responsiveness and reduce pain. Massage stimulates the production of endorphins, which are the body's natural pain killer.

Field.T,(2002)., documented that there is an improvement in 31 – 47 % greater weight gain in preterm neonates receiving massage therapy compared with the standard medical treatment.

Gloria Wong , (2003)., documented from the gentle stroking and touching, babies feel loved and more secure. It also helps them to feel more relaxed. Babies who are massaged found that they were calmer ,cried less and slept better. Premature babies who received regular massage gained an average more weight than premature babies who did not receive massage. Even eight months later the massaged babies continued to show better growth and development. This showed that the infant massage has long term as well as short term benefits.

Quinn,(1989)., states that the skin is the largest organ of the body and it has innumerable nerve endings for touch ,pain and pressure that are responsible for various tactile and somatosthetic sensation that play an important role in the development of the neonates

b) Studies related to the need for tactile stimulation on preterm babies

Mann N.P. etal., (2009),conducted a randomized controlled trial to assess the effectiveness of massage therapy given by mothers and trained professionals to replicate the results of increased weight in Iran. The data was collected by random cluster design from 57 healthy, preterm infant assigned to three groups; two treatment group one in which the mothers performed the massage in first group and the other in which a professional female unrelated to the infant administered the treatment. Both these groups were compared to a control group

of preterm infant. The result revealed that over the 10-day study period, the two treatment group gained significantly more weight compared to the control group (291.3 and 311.3 vs. 225.5g, respectively). Study concluded that mothers were able to achieve the same effect as that of trained professionals, allowed cost-effective application of the treatment within the neonatal intensive care unit.

Charpak etal.,(2008),conducted a study to assess the effect of massage on weight gain and body fat deposition in preterm infants in Utah. Preterm infants (29-32 weeks) were randomized to the massage group (n = 22, 12 girls, 10 boys) or the control group (n = 22, 12 girls, 10 boys). Massage care was administered twice-daily by licensed massage therapists (6 d/wk for 4 weeks). Body weight, length, Ponderal Index (PI), body circumferences, and skin fold thickness (triceps, mid-thigh, and sub scapular [SSF]) were measured. Circulating insulin-like growth factor I, leptin, and adiponectin levels were determined by Enzyme-Linked Immunosorbent Assay. Daily dietary intake was collected. Energy and protein intake as well as increase in weight, length, and body circumferences were similar. Male infants in the massage group had smaller PI, triceps skin fold thickness, mid-thigh skin fold thickness, and SSF and increased over time compared with control male infants. Female infants in the massage group had larger SSF increased than control female infants .Circulating adiponectin increased over time in control group. Male infants and female infants were correlated to PI. The findings suggested that massage improved body fat deposition and, in turn, growth quality of preterm infants in a sex-specific manner.

Jyotiarora etal., (2005),conducted a study to evaluate the effect of tactile stimulation among preterm babies. The data was collected by Quasi experimental design from 60 preterm babies .In these 30 were assigned to control group and 30 were for experimental group. babies in the experimental group were assigned to tactile stimulation. The results found that the preterm babies , who received tactile stimulation achieved weight gain, stable heart rate, improved feeding pattern , increased sleeping pattern, and decreased crying spells than control group . The study concludes that the tactile stimulation when administered on preterm babies , has a beneficial effect on growth and development.

Dabi etal .,(2005).conducted a study on the effects of infant massage on weight gain physiological and behavioral responses in premature infant. The data was collected by using an equivalent control pretest-posttest design from two groups of 13 infants with gestational age less than 36 weeks at birth, births weight less than 2000g and no congenital anomalies. The experimental group received the massage intervention twice daily for 10 days. The data were collected for 10 min prior to and 10min after the massage. The result revealed the vagal tone was significantly higher after massage than before massage in the experimental group, while no change in the control group. The experimental group had higher scores for awake state and motor activity than the control group. Thus the result of the study showed that massage therapy might enhance optimal physiological responses and behavioral organization of premature infants Nursing staff in the NICU can use massage to promote the infant's capability to respond positively to his environment and to provide developmental support for healthy premature infants.

Salles etal .,(2005), conducted a randomised study to explore the potential underlying mechanism of weight gain in preterm with low birth weight neonates by assessing gastric motility, sympathetic and parasympathetic nervous system activity in response to massage therapy moderate pressure versus light pressure and control condition in a group of 40 preterm neonates. The study revealed that the preterm neonates received light pressure and preterm neonates received moderate pressure exhibited greater weight gain and increased vagal tone and gastric motility during and immediately after treatment. Gastric motility and vagal tone during massage therapy were significantly related to weight gain.

Sloan ., (1994) , conducted on tactile/kinesthetic stimulation effects on preterm neonate among 20 preterm neonates (mean gestational age, 31 weeks; mean birth weight 1.280g, mean time in neonatal intensive care unit 20 days) during transitional nursery care, to assess their growth and sleep wake behaviour. Brazelton scale was used to assess the neonates.The tactile stimulation consisted of body stroking and passive movement of the limbs for three 15 min period per day for 10 days. The result revealed that the stimulated neonates had an average of 47% greater weight gain per day, and tactile/kinesthetic stimulation was a cost effective way to facilitating growth and sleep wake behaviour in very small preterm neonates.

c)**Studies on the effect of tactile stimulation on preterm babies**.

Huda Shawky Mahmud ., (2015) , conducted a quasi experimental study to assess the effect of oil massage therapy on anthropometric parameters and behavioural state of stable LBW neonates. The sample consists of 60 LBW

neonates which were selected through purposive sampling technique. 30 neonates assigned to study group and 30 neonates to control group. The study group received the oil massage therapy for 15 minutes per day for 10 consecutive days. Pre test and post test was assessed by Brazelton Neuro Behavioural Assessment Scale. The study findings revealed that the study group gained significantly total weight gain with mean 254.70 , SD 29.6 than the control group with mean 110.20 SD 50.98 . Hence it concludes that the oil massage therapy was an effective and safe intervention for increasing anthropometric parameters and improving behavioural state of LBW neonates.

Safasalah,. (2014),conducted an equivalent control pretest-posttest design to note the responses of premature infants towards coconut oil massage (tactile and kinesthetic stimulation). These responses measured by weight, physiological (vagal tone, heart rate, oxygen saturation) and behavioral responses (behavioral states, motor activities, and behavioral distress).. The sample was divided into two groups of 13 infants with gestational age less than 36 weeks at birth, birth weight less than 2000g, and no congenital anomalies. The experimental group received the massage intervention twice daily for 10days. The data were collected for 10 minutes prior to and 10 minutes after the massage. The vagal tone was significantly higher after massage than before massage in the experimental group, while no change in the control group. The experimental group had significantly higher scores for awake state and motor activity than the control group. Significantly greater awake state, more fidgeting or crying and increased motor activity were reported after massage than before massage. The results of this

study showed that massage therapy might enhance optimal physiological responses and behavioral organization of premature infants. Nursing staff in the NICU can use massage to promote the infant's capability to respond positively to his environment and to provide developmental support for healthy premature infants.

Faranak Aliabadi Etal., (2013) , conducted a randomized controlled study to assess the effect of tactile kinesthetic stimulation on low birth weight babies at Tehran . the sample consists of 40 low birth weight babies in which 20 assigned to study group and 20 to control group through random sampling technique. Massage therapy was begun and continued for 10 consecutive days , 3 times a day for 15 minutes. Pre test and post test was assessed by Brazelton Neuro Behavioural Assessment Scale. The study findings revealed that the gestational age, birth weight, length and head circumference are equal for both the groups and weight was increased with the pre test mean 2015 , SD 309 in experimental and control group mean 2014 , SD 305, and post test mean 1930.0 SD 338.50 in experimental group and control group mean 1945.5 , SD 299.8 & p = 0.2(NS). Hence the study reveals that the tactile kinesthetic stimulation was effective in increasing the weight in low birth weight babies.

Sedigh Ahakhavan Karbasi Etal., (2013) conducted a randomized single, blind, open parallel group clinical trial to evaluate the efficacy of body massage on growth parameters of low birth weight neonates in Iran. 40 newborns were selected through simple randomization and assigned to two groups.20 neonates in study group and 20 neonates in control group. The body massage was

carried for the duration of 10minutes in three session (morning, at noon , evening) and it continued for 14consecutive days. The pre test and post test was assessed by anthropometric measurements and Dubowitz scale. The results showed that in the pre test mean weight was 1879 , SD 203 and post test mean was 2201 , SD 93 & p value 0.05(S) , pre test mean height was 42.64 , SD 1.38 and post test mean was 44.01 , SD 1.27 & p value 0.251 pretest mean head circumference was 31.06 , SD 1.11 and post test mean was 32.6,SD 0.51. Hence the results showed that only weight was significantly higher than the control group with mean 3250 , SD 305 & 2948 , SD 121 & p value 0.005(S). Thus it concludes that body massage is an effective intervention for increasing weight gain velocity in low birth weight preterm neonates.

Reza Sacidi Etal., (2013) conducted a randomized clinical trial to investigate the effect of massage with medium – chain triglyceride oil on weight gain in premature neonates in Qaem education hospital Iran. The samples consists of 121 stable premature neonates selected through simple and non probability type , the samples were randomly divided into 3 groups. 40 in oil massage and 40 in massage group and 41 in control groups. In the oil massage group , the neonates received massage therapy for four times a day for five minutes for one week without using oil, for control group assessed without intervention. In oil massage group , the mean age was 30.8 SD 2.4 years. In massage and control group the mean age was 31.6 and SD 2.7. No statistically meaningful difference was observed between the three groups regarding age p = 0.08. The mean neonatal weight in the first, second and third group mean was1484, SD 378

,mean1589, SD 589, mean1559, SD 425. No significance with weight p = 0.04 , the mean head circumference was 29, SD 1.9 and 30, SD 2.7 and 30.0 SD 2.5. No significance with head circumference p = 0.2 . Hence the result showed that the daily massage with MCT oil in premature neonates is effective for weight gain without causing any complications.

Ramasundari B., (2009), conducted a pre experimental study to evaluate the effectiveness of massage therapy on health promotion of newborns in maternity ward of the Omsakthi hospital, Krishnagiri. The sample comprised of 30 newborns delivered by LSCS selected through convenient sampling technique. Massage was given with coconut oil all over the body for 20 minutes per day for five days. Pretest and posttest assessment was by using Brazelton Neuro Behavioural Assessment Scale. The study findings revealed that the pre and post assessment level of massage therapy reveals the mean difference was 1.8 & SD 0.3888 and the paired 't' test value 8.11, which was highly significant at p< 0.001 level in the sleeping time. In crying spell , the mean difference was 0.9 & SD 0.045 and the paired 't' value 9 , which was highly significant at p<0.001 level . In the feeding frequency, the mean difference was 1.07 & SD 0.060 and the paired 't' value is 7.44 showed high level of significance at p< 0.001 level. Hence it showed that health promotion was achieved by applying massage therapy on newborns and their crying spells reduced, feeding frequency increased and also sleeping time increased.

Pasilikathilaka, Nalinijeyavantha., (2009) conducted a two group pre and post test quasi experimental design to determine the effect of tactile

stimulation on selected parameters among preterm babies. the sample consists of 60 preterm babies among them 30 samples assigned to the experimental group and 30 samples assigned to the control group through convenient sampling technique. Tactile stimulation was started with 10 ml of sesame oil in morning for 15 minutes and continued at the same time daily for 5 days in experimental group. Post test assessment of physiological and behavioural parameters were done on 3^{rd},4^{th} and 5^{th} day of tactile stimulation during morning and evening for experimental group. The post test assessment were done on the control group on the same days without giving interventions. Post test assessment was done by structured interview schedule to assess the behavioural parameters and physiological measurement. Results shows that babies who received tactile stimulation achieved weight gain ($t = 4.01$), stable heart ($t = 12.5$), improved feeding pattern ($t = 21.69$), increased sleeping time ($t = 11.63$),decreased crying spells ($t = 10.25$) than control group ($p < 0.005$). Hence the study concludes that the tactile stimulation ,when administered to preterm babies , has a beneficial effect on growth and behavioural development.

Mukesh Vir Singh., (2008) conducted a randomized controlled trial to study the effect of physical stimulation in very low birth weight babies and its relation with gross motor mile stones and weight gain up to one year of age in rural areas of Northern India. 60 babies were selected randomly and assigned to each groups. 20 in massage with oil , 20 in massage without oil, 20 without massage. The massage comprised of 20 gentle strokes the duration of the massage was 10 minutes performed 4 times a day. Infants were massaged with 10 ml of

mustard oil .the study results revealed that the weight gain and mile stone development in the oil massage group was significantly greater than the massage without oil or no massage groups. Again it was significantly greater in the massage without oil than no massage group. With mean 3.14 ,SD 0.3575 in oil massage and mean 3.64 , SD 0.3972 in only massage and mean 4.14 , SD 0.4094 in no massage. Hence the study showed that the weight gain in the oil massage group was higher compared to the only massage group and no ,massage group, this difference and the difference in other anthropometric parameters were statistically significant thus it proves that oil application may have a potential to improve weight gain and early gain of gross motor mile stones among preterm very low birth weight neonates.

Chingthouliue K .G., (2008), conducted a quasi experimental study to assess the effect of touch therapy on weight gain and sleep awake pattern among preterm babies in selected hospitals in Bangalore. The sample comprised of 40 preterm babies 20 assigned to experimental group and 20 in control group through convenient sampling technique, the touch therapy was scheduled for 15 minutes twice daily for 5 consecutive days. The pre& post test was assessed by observational checklist. Post test was assessed on the sixth day. The results revealed that the massaged babies had average weight gain and sleep awake pattern which is 28% greater than normal. Hence the study concludes that the touch therapy enhance the weight gain and improve sleep awake pattern of preterm babies.

Haekyung Lee., (2007) , conducted a non-equivalent control group pretest posttest design to test the effectiveness of infant massage on weight, height and mother infant interaction. The samples were selected through convenient sampling.32 infants were assigned to experimental group and 32 in control group. The infant massage was given to the infants for four days per week. Each massage consisted of 5 minutes tactile kinesthetic stimulation, post test was assessed by the Mothers Perception of Infant Temperament Scale. The result of the study reveals that after 4 weeks of massage , There was no significant difference on weight gain and height increase between two groups value. Comparison of the total scores for the mother – infant interaction between the two groups showed a significant difference "t" = 5.21 p = 0.000. There were also significant difference on maternal response "t" = 3.78,p = 0.000.infant response "t"= 4.05 p =0.000 in the mother infant interaction between the two groups. Over all the results of this study reassure that infant massage facilitates the mother infant interaction for infants and mother who give massage to their baby.

Saumya John etal., (2005) conducted a quasi-experimental two group pretest and post design to assess the effectiveness of massage therapy on weight and sleepwake pattern among preterm infants at Government Head Quarters Hospital kancheepuram. 60 preterm infants were included in the study through convenient sampling technique. 30 infants assigned to the experimental group and 30 infants assigned to the control group. Massage therapy was given to the pre term infants of study group15 minutes for 5 days. Post test was assessed for both the study group and control group. The result of the study reveals that the

comparison of pretest and post test scores of preterm infants in experimental group pretest mean weight was 1880.33 , SD 234.29, posttest mean weight was 2032.50, SD 261.39 & calculated "t" value 12 .47 and p = 0.000(S), In control group the pre test mean weight was 1858.67, SD 227.20 post test mean weight was 1857.94, SD 216.11 & calculated "t" value 0.14 and p = 0.89 (NS).Comparison of sleep wake pattern of pretest mean 2.10, SD 0.61, post test mean 2.83, SD 0.38&calculated "t" value 8.93 and p = 0.000(S) in study group and in control group sleepwake pattern of pretest mean was 2.10, SD 0.48, post test mean 2.13, SD 0.43 &calculated "t" value 1.000 and p = 0.33 (S). Association between post test level of weight and selected demographic variables in experimental group gestational age x^2 = 15.75, condition of infant x^2 = 19.62 , type of feed x^2 = 7.81 & association between post test sleep wake pattern with selected demographic variables in experimental group gestational age x^2 = 15.75, condition of infant x^2 = 8.76 , type of feed x = 8.72. Correlation between weight and sleep wake pattern among preterm infants before massage therapy in experimental group mean weight 1880.33, SD 234.29 & sleep wake pattern mean2.10, SD 0.61calculated "t" value 0.5 and p = 0.01(S). and in control group mean was 1858.67, SD 227.24 &sleep wake pattern mean was 2.10 SD 0.48, calculated "r" value 0.57and p =0.01(S). Correlation between weight and sleep wake pattern among preterm infants after massage therapy in experimental group mean weight was 2032.50, SD261.39 & sleep wake pattern mean was 2.83 , SD 0.38, calculated "t" value 0.5 and p = 0.01(S) and in control group mean was 1857.94 , SD 216.11 & sleep wake pattern mean was 2.13, SD 0.43, calculated "r" value was 0.43 and p = 0.02(S). Hence the findings of the study revealed that

the pre test and post test scores of weight and sleep wake pattern of preterm infants of experimental group showed statistically significant difference than control group by suggesting that massage therapy is promoting weight gain and sleep wake pattern. Among the demographic variables such as gestational age , type of feeding and birth weight shown significant association between weight and sleep wake pattern.

Sankarnarayanan.K. etal., (2004), conducted a open randomized controlled trial to compare the effect of massage with coconut oil versus mineral oil and placebo(powder) on growth velocity and neurobehaviour in well term and preterm infants. Totally 224 infants were randomly selected and assigned to each group in term and preterm infants. 38 infants were placed in coconut oil group , 37 infants in mineral oil group and placebo group in term infants. In preterm infants group 32 infants placed in coconut oil group and 32 in mineral oil group and 31 in placebo group. The massage was given to each groups. The total duration of each session was 5 minutes and done 4 times a day for 31 days. Pre and post test was assessed by Brazelton Neuro Behavioural Assessment Scale. The result findings revealed that the preterm mean weight was 1792.89 , SD 149.56 in coconut oil and gestational age mean was 34.89 , SD 1.27, And it shows no statistically significant difference between weight and gestational age of babies .In coconut oil group weight was significantly higher as compared to the mineral oil and placebo group. Hence the effect of massage with coconut oil was effective on growth and Neuro Behaviour in well term and preterm infants.

Mathai.S etal ., (2001), conducted a controlled trial study to determine the effect of tactile kinesthetic stimulation to preterm babies on physiologic parameters , physical growth and behavioural development. The sample consists of 48 preterm babies. Neonates were divided into two groups .pre test and post test was assessed by Brazelton Neuro Behavioural Assessment Scale. The massage was given to study group babies daily 3 times and continued for 28 days ,and each session comprises of 15 minutes. The study reveals that there is an increase in heart rate in experimental group during stimulation. It also showed a weight gain on the Brazelton Scale , the test group showed statistically significant improved scores on the orientation , range of state , regulation and stability. Thus it concludes that the tactile kinesthetic stimulation was beneficial on growth and behavioural development.

CHAPTER – III

RESEARCH METHODOLOGY

This chapter deals with the methodology adopted by the researcher for the study includes research approach, research design, variables, the settings of the study, population, sample, sampling technique, sample size, description of the tool, validity, reliability, pilot study, intervention, data collection procedure, plan for data analysis and ethical consideration.

Research Approach

Quantitative approach was used in this study.

Research Design

Research design is defined as plan of how, when and where data were collected and analyzed.

Research design used for the study was Quasi Experimental research design - **Non equivalent , control group design**.

The diagrammatic representation of this design was as follows,

Group	Pre test	Intervention	Post test$_1$	Post test$_2$
Experimental Group	O_1	X	O_2	O_3
Control Group	O_1	-	O_2	O_3

Keys:

O_1 - Represent the pre-test score among preterm babies .

X - Represent administering the intervention tactile stimulation.

O_2 - Represent the third day post-test score among preterm babies.

O_2 -Represent the fifth day post-test score among preterm babies.

--- - No intervention.

Variables

Independent Variables

Tactile Stimulation.

Dependent Variables

Selected Physiological parameters such as temperature,respiration,oxygen saturation,heart rate.

Neuro BehaviouralItems:

Behavioural items such as habituation, cry, passive movements of arms, passive movements of legs, sleeping pattern, feeding pattern,

Neuro items include sucking reflex, rooting reflex, moro reflex, babinski reflex .

Demographic Variables

Demographic variables of Babies – Gender, Gestational age in weeks, Birth weight

Setting of the study:

The study was conducted in Kanyakumari Government Medical College Hospital at Nagercoil.

Population

Target population

The entire population in which the researcher are interested and to which they would like to generalize the research findings.

In this study, the target population comprised of Preterm babies.

Accessible population

The aggregate of cases that conform to designated inclusion or exclusion criteria and that are accessible as subjects of the study.

The accessible population was Preterm babies who meets the inclusion criteria in government medical college hospital, Asaripallam.

Sample

A part or subset of population selected to participate in research study.

The sample subjects consists of preterm babies who were full filled the inclusion criteria.

Sampling technique

Convenient Sampling Technique.

Sample size

The sample consists of 30 preterm babies in experimental group and 30 preterm babies in control group.

Criteria for sample selection

The sample was selected based on the following criteria:

Inclusion Criteria

1. Neonates who are born between 32 - 37completed weeks of gestation.
2. Neonates having birth weight between 1000 - 2000 grams.
3. Neonates with Apgar score minimum 7 at 1 & 5 minutes with no resuscitation required at birth.
4. Neonates delivered by normal vaginal delivery or LSCS.
5. Neonates under warmer.

Exclusion Criteria

1. Neonates who have undergone surgery.
2. Neonates having any congenital anomalies.
3. Sick babies or those with neuro muscular disorders.
4. Neonates with skin disorders.

5. Neonates under phototherapy.

6. Neonates born through forceps delivery ,vaccum extraction.

Description of the tool

The tool consists of three sections:

Section A:

It consists of demographic variables such as gestational age, gender, birth weight.

Section B:

It consists of physiological parameters such as temperature, heart rate, respiratory rate, oxygen saturation.

Scoring key

1-4 Mild Prematurity

5-8 Moderate Prematurity

9-12 Severe Prematurity

Section C:

It consists of Modified Neonatal Neuro Behavioural Assessment Scale by Brazelton to assess the selected parameters.

Neuro Behavioural Items:

Behavioural items such as habituation,cry,passive movements ofarms,passive movements of legs,sleeping pattern, feeding pattern.

Neuro items include sucking reflex, rooting reflex, moro reflex, babinski reflex

Scoring key

0-10 Severe prematurity

11-20 Moderate prematurity

21-30 Mild prematurity

Validity

The content validity of the tool was established on the opinion of one medical expert in the field of Paediatrics and four paediatric nursing experts. The tool was modified as per the consensus of all the experts and the tool was finalized.

Reliability

The reliability score for Brazelton Neonatal Neuro Behavioural Assessment Scale r =0 .98, and the Physiological parameters r = 0.82 was determined by inter rated method. Hence the tool was highly reliable.

Pilot study

The pilot study was a trial run for the major study. The tool was used for the pilot study to test the feasibility and practicability. The study was conducted in lakshmi child care centre, Sucheendram . A formal permission was obtained from the Director of Lakshmi Child Care Centre, Sucheendram.

The pilot study was conducted in Lakshmi Child Care Centre , Sucheendram. 10 samples were selected by using convenient sampling method 5 samples in experimental group and 5 samples in the control group. Interventions were given to the samples in experimental group & Post test was conducted after 5 days. Pilot study findings showed that the intervention of touch was practicable with preterm babies.

Data collection procedure

- The investigator obtained formal permission prior to data collection from concerned authority in Government Medical College Hospital .Investigator explained the purpose of the study and oral consent was obtained from the parents. The babies who met the inclusion criteria was selected. Pre test was conducted by using Modified Neonatal Neurobehavioural Assessment Scale by Brazelton for both experimental and control group. The investigator started giving the tactile stimulation with 10 ml of coconut oil to the selected preterm babies in experimental group.

Procedure

Step 1: Place the baby on the arms of the nurse in prone position. Four firm strokes with palms of the hands of nurse , were provided in 3 areas.(a) neck from midline outwards with both hands simultaneously ; and (b) shoulders from midline outwards with both hands simultaneously, (c) back from nape of neck down to buttocks with firm , long strokes with alternate hands. The duration of this step was 5 minutes.

Step2 : Place the baby on the arms of the nurse in supine position . Four firm strokes with palms of the hands of nurse were provided in each area (a) fore head – from midline , outwards with both hands simultaneously.(b) cheeks – from side of hands with both hands simultaneously in rotating and clockwise direction..(c) chest 'butterfly' stroking from midline upwards , outwards and inwards back to initiating point.(d) abdomen – from the appendix in a clock wise direction around abdomen avoiding the epigastrium and probes, with gentle strokes. The duration of the step was 5 minutes.

Step 3 : continues the massage to the upper limbs and lower limbs. (a) upper limbs (each separately) from shoulder to forearm using alternate hands for stroking.(b) forearms to palms using alternate hands. (c) palms from wrist to finger tips using alternate hands for stroking.(d) lower limbs (each separately) from thighs to ankles .(e)ankles to soles (f) soles from heel to toe tips using alternate hands for stroking. The procedure was repeated on each day morning and evening. The total duration of the procedure was 15 minutes.

The investigator conducted the post test on 3rd and 5th day of evening by using the same tool for the experimental group and the investigator conducted the post test on 3rd and 5th day of evening without intervention for the control group.

Plan for data analysis

Both descriptive and inferential statistics were used.

Descriptive Statistics

- The frequency and percentage distribution of demographic variables, physiological parameters and behavioural items.

- Mean and standard deviation was used to assess the selected parameters among preterm babies.

Inferential Statistics

- Paired 't'-test was used to compare the pre and post test score of selected parameters among preterm babies in experimental and control group.
- Independent "t" test was used to compare the scores of selected parameters among preterm babies in experimental & control group.
- Chi-square was used to associate the pretest score of selected parameters among preterm babies with their selected demographic variables.

Ethical Consideration

The proposed study was conducted after the approval of the research committee of college. Permission was obtained from the Hospital. The written consent was obtained before data collection. Assurance was given to the study participants regarding the confidentiality of the data collected.

Summary

This chapter dealt with research approach, research design, variables, the setting of the study, population, sample, sampling technique, sample size, description of tool, validity, reliability, pilot study, , data collection, procedure, plan for data collection, and ethical considerations

CHAPTER - IV

ANALYSIS AND INTERPRETATION

Polit and Hunger (1999) state that statistical analysis is a method of rendering quantitative information in a meaningful and intelligible manner. Statistical procedure enables the researcher to organize, analyze, evaluate, interpret and communicate numerical information meaningful

This chapter deals with the statistical analysis and interpretations of the data to assess the effect of tactile stimulation on selected parameters among preterm babies at Nagercoil .

Data analysis was computed after transferring the collected data into a coding sheet. The data was analysed, tabulated and interpreted using descriptive and inferential statistics.

Organization of data

The data has been tabulated and organized as follows,

Section A : Frequency & percentage distribution of sample according to the demographic variables.

Section B : Frequency and percentage distribution of score in behavioural and physiologic items among preterm babies in experimental and control group.

Section C : Assess the effectiveness of tactile stimulation on selected parameters among preterm babies.

Section D : Compare the pre test and post test score on selected parameters among preterm babies.

Section E : Association between pre test score on selected parameters among preterm babies with their selected demographic variables.

Section A

This section deals with frequency and percentage distribution of demographic variables among preterm babies

Table 1 : Frequency and percentage distribution of demographic variables of babies among preterm babies n=60

SNO	Demographic Variables Of Babies	Experimental group n= 30		Control group n= 30	
		f	%	f	%
1	**Gender**				
	a) Male	16	53.33	13	43.33
	b) Female	14	46.67	17	56.67
2	**Gestational Age (in weeks)**				
	a) 34 – 37 weeks	4	13.33	5	16.67
	b) 32 – 34 weeks	11	36.67	12	40.00
	c) Less than 32 weeks	15	50.00	13	43.33
3	**Birth Weight(grams)**				
	a) 1000 – 1300 grams	9	30.00	8	26.67
	b) 1301 – 1700 grams	16	53.33	16	53.33
	c) 1701 – 2000 grams	5	16.67	6	20.00

Table : 1 reveals that ,

The demographic variables of babies among preterm babies on experimental and control group such as gender, gestational age and birth weight.

Regarding gender 16(53.33 %) were males in experimental group and 13(43.33 %) in control group and 14(46.67 %) females in experimental group and 17(56.67 %) in control group.

Regarding Gestational age majority 15(50.00%) of babies in experimental were babies less than 32 weeks , 11(36.67) of babies in control group were between 32 – 34 weeks and 12(40.00%) of babies in control group and least 4(13.33%) in experimental group and 5(16.67%) in control group.

Regarding Birth weight 9(30.00%) less than 1000 – 1300 grams in experimental group and 8(26.67%) in control group and majority 16(53.33%) of babies between 1301 – 1700 grams in experimental group and 9(30.00%) in control group, and least 5(16.67%) in experimental group and 6(20.00)in control group were between 1701 – 2000 grams.

Section B

This section deals with frequency and percentage distribution of pre test and post test score on behavioural items and physiological parameters among preterm babies

Table 2: Frequency and percentage distribution of on behavioural items among preterm babies in experimental group

n=30

S.No.	Behavioural Items	Pre Test		Post Test			
		f	%	Day III		Day V	
				f	%	f	%
1	Severe prematurity	30	100.00	2	6.67	0	0.00
2	Moderate prematurity	0	0.00	26	86.66	7	23.33
3	Mild prematurity	0	0.00	2	6.67	23	76.67

Table 2 shows that ,

In the pre test 30(100%) had severe prematurity. On the third day 2(6.67%) had severe prematurity and 26(86.66%) had moderate prematurity and 2(6.67%) had mild prematurity in the post test. On the fifth day 7(23.33%) had moderate prematurity and 23(76.67%) had mild pre maturity and no one had severe prematurity in the post test in experimental group.

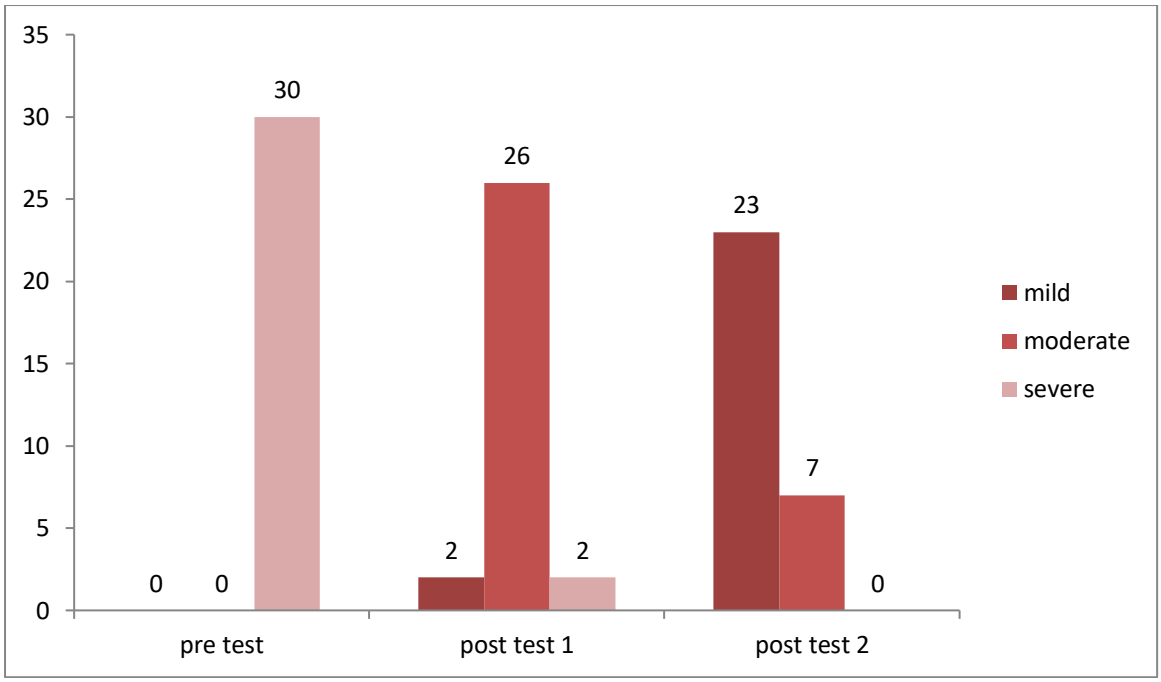

Figure 2 : Frequency score on behavioural items among preterm babies in experimental group

Table 3 : Frequency and percentage distribution on behavioural items among preterm babies in control group.

n=30

S.No.	Behavioural Items	Pre Test		Post Test			
		f	%	Day III		Day V	
				f	%	f	%
1	Severe prematurity	30	100.00	21	70.00	16	53.33
2	Moderate prematurity	0	0.00	9	30.00	14	46.67
3	Mild prematurity	0	0.00	0	0.00	0	0.00

Table 3 shows that 30(100%) of babies had severe prematurity on pre test in control group. On third day 21(70%) of babies had severe prematurity and 9(30%) had moderate prematurity. On fifth day 16(53.33%) of babies had severe prematurity and 14(46.67%) had moderate prematurity.

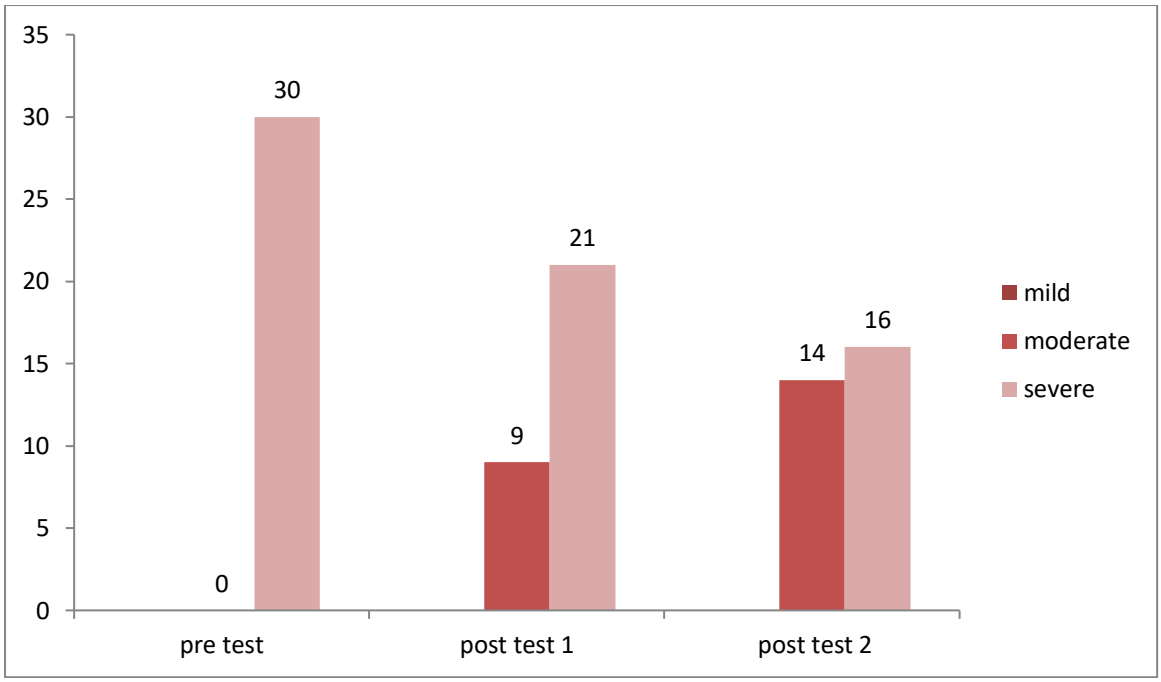

Figure 3 : Frequency score on behavioural items among preterm babies in control group

Table 4 : Frequency and percentage distribution on physiological parameters among preterm babies in experimental group

n=30

S.No.	Physiological Items	Pre Test		Post Test			
		f	%	Day III		Day V	
				f	%	f	%
1	Severe prematurity	16	53.33	0	0.00	0	0.00
2	Moderate prematurity	14	46.67	30	100.00	10	33.33
3	Mild prematurity	0	0.00	0	0.00	20	66.67

Table 4 shows that 16(53.33%) had severe prematurity and 14(46.67%) had moderate prematurity in the pre test. On the third day 30(100%) had moderate prematurity. On the fifth day 20(66.67%) had mild prematurity and 10(33.33%) had moderate prematurity and no one had severe prematurity in the post test in experimental group.

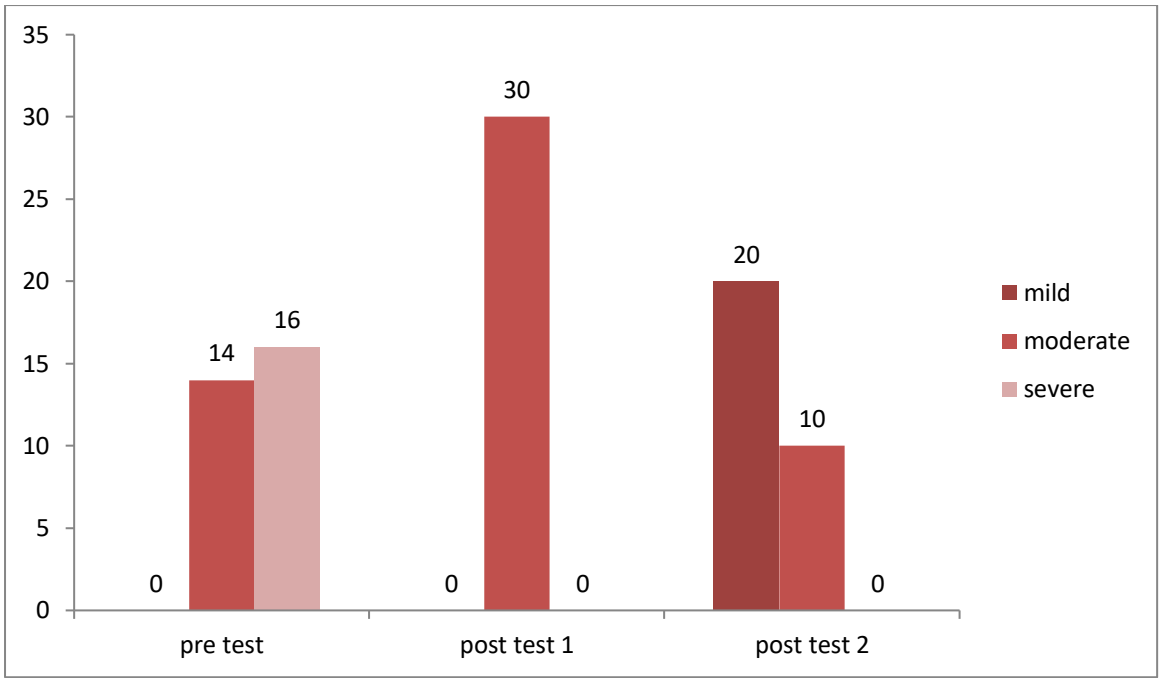

Figure 4 : Frequency score on physiological items among preterm babies in experimental group

Table 5 :Frequency and percentage distribution on physiological parameters among preterm babies in control group

n=30

S.No.	Physiological Items	Pre Test		Post Test			
		f	%	Day III		Day V	
				f	%	f	%
1	Severe prematurity	15	50.00	16	53.33	0	0.00
2	Moderate prematurity	15	50.00	13	43.33	28	93.33
3	Mild prematurity	0	0.00	1	3.33	2	6.67

Table 5 shows that 15(50.00%) had severe prematurity and 15(50.00%) had moderate prematurity in the pre test. On the third day 16(53.33%) had severe prematurity and 13(43.33%) had moderate prematurity and 1(3.33.%) had mild prematurity. On the fifth day 28(93.33%) had moderate pre maturity and 2(6.67%) had moderate prematurity and no one had severe prematurity in the post test in control group.

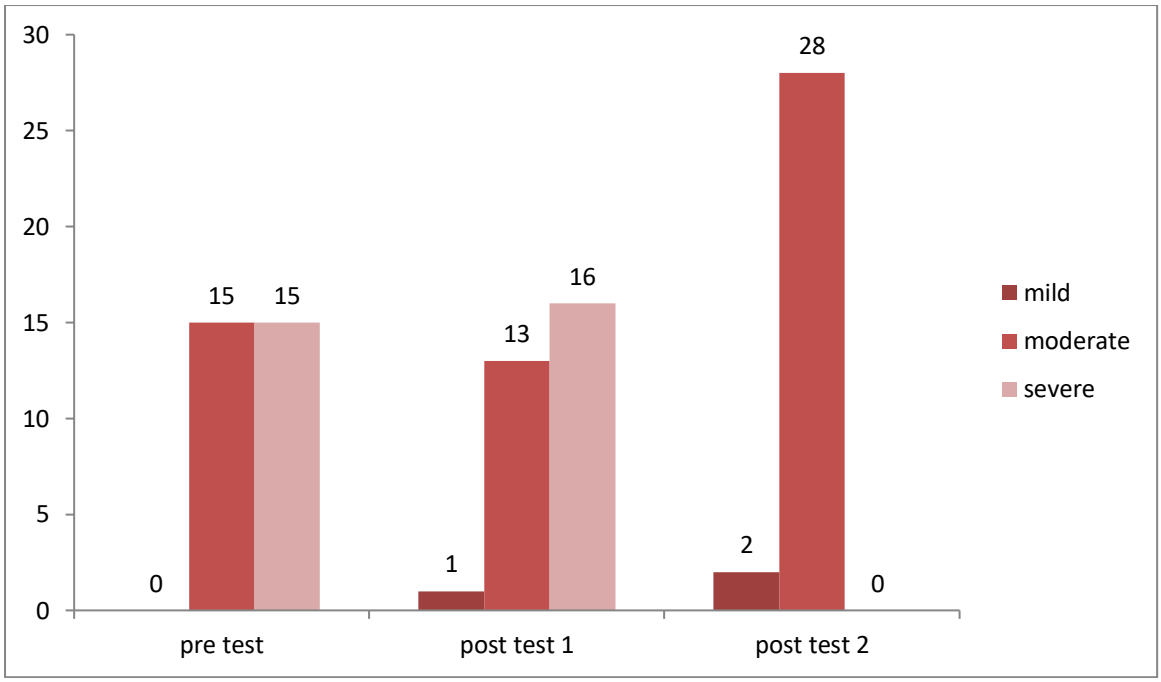

Figure 5: Frequency score on physiological items among preterm babies in control group

Section C

This section deals with the effectiveness of tactile stimulation on selected parameters among preterm babies

Table 6 : Effectiveness of tactile stimulation on behavioural items among preterm babies in experimental group

n=30

S No.	Days	Test	Mean	Standard deviation	Mean difference	Paired t test	Significance at 5% level
1	I day	Pre Test	8.46	1.50	6.80	15.91 **S**	29 df 2.042
	III day	Post Test	15.26	2.87			
2	III day	Post Test	15.26	2.87	7.03	16.66 **S**	29 df 2.042
	V day	Post Test	22.30	2.64			
3	I day	Pre Test	8.46	1.50	13.83	32.86 **S**	29 df2.042
	V day	Post Test	22.30	2.64			

S = significant at 0.05 level

Table 6 shows that ,

In the pre test mean tactile stimulation effectiveness in terms of behavioural items score was 8.46 with standard deviation 1.50.On the third day , the post test score was 15.26 with standard deviation 2.87 , the mean difference was (6.80) high and statistically significant. That is tactile stimulation was effective in improving the level of maturity among preterm babies. On the fifth day, the post test score was 22.30 with standard deviation 2.64.when compare with the third day post test score, the mean difference (7.03) was high and statistically significant. That is the level of maturity of preterm babies were improving by practicing the tactile stimulation.

When we compare the pretest score with the fifth day post test, the mean difference was high and statistically significant. Hence the tactile stimulation was effective in improving the level of maturity among preterm babies in experimental group.

Table 7 : Effectiveness of tactile stimulation on behavioural items among preterm babies in control group

n=30

S.No.	Days	Test	Mean	Standard deviation	Mean difference	Paired t test	Significance at 5% level
1	I day	Pre Test	8.43	1.52	1.15	8.13 **S**	29 df 2.042
	III day	Post Test	9.58	1.21			
2	III day	Post Test	9.58	1.21	1.15	10.09 **S**	29 df 2.042
	V day	Post Test	10.73	0.94			
3	I day	Pre Test	8.43	1.52	2.30	11.26 **S**	29 df 2.042
	V day	Post Test	10.73	0.94			

S : Significant at 0.05 level

Table7 shows that

In the pre test mean score in terms of behavioural items score was 8.43 with standard deviation 1.52.

On the third day , the post test score was 9.58 with standard deviation 1.21 , the mean difference was (1.15) statistically significant. That is normal treatment was effective in improving the level of maturity among preterm babies.

On the fifth day, the post test score was 10.73with standard deviation 0.94.when compared with the third day post test score, the mean difference (1.15) was statistically significant. That is the level of maturity of preterm babies were slowly improving by normal treatment.

When we compare the pretest score with the fifth day post test, the mean difference was (2.3) and statistically significant. Hence the normal treatment was least effective in improving the level of maturity among preterm babies in control group.

Table 8 : Effectiveness of tactile stimulation on physiological parameters among preterm babies in experimental group

n=30

S.No.	Days	Test	Mean	Standard deviation	Mean difference	Paired t test	Significance at 5% level
1	I day	Pre Test	8.43	0.68	1.20	8.16 **S**	29 df 2.042
	III day	Post Test	7.23	0.73			
2	III day	Post Test	7.23	0.73	2.80	21.46 **S**	29 df 2.042
	V day	Post Test	4.43	0.75			
3	I day	Pre Test	8.43	0.68	4.00	21.15 **S**	29 df 2.042
	V day	Post Test	4.43	0.75			

S: Significant at 0.05 level

Table 8 shows that,

In the pretest mean tactile stimulation effectiveness in terms of physiological parameters score was 8.43 with standard deviation 0.68.

On the third day , the post test score was 7.23 with standard deviation 0.73 , the mean difference was (1.20) high and statistically significant. That is tactile

stimulation was effective in improving the level of maturity among preterm babies. On the fifth day, the post test score was 4.43 with standard deviation 0.75.when compare with the third day post test score, the mean difference (2.80) was high and statistically significant. That is the level of maturity of preterm babies were improving by practicing the tactile stimulation.

When we compare the pretest score with the fifth day post test, the mean difference was (4) high and statistically significant. Hence the tactile stimulation was effective in improving the level of maturity among preterm babies in experimental group.

Table 9 : Effectiveness of tactile stimulation on physiological parameters among preterm babies in control group

n=30

S.No.	Days	Test	Mean	Standard deviation	Mean difference	Paired t test	Significance at 5% level
1	I day	Pre Test	8.49	0.57	0.57	4.25 **S**	29 df 2.042
	III day	Post Test	7.9	0.56			
2	III day	Post Test	7.9	0.56	1.1	6.23 **S**	29 df 2.042
	V day	Post Test	6.8	0.55			
3	I day	Pre Test	8.49	0.55	1.69	10.53 **S**	29 df 2.042
	V day	Post Test	6.8	0.57			

Table 9 shows that,

In the pre test mean tactile stimulation effectiveness in terms of physiological parameters score was 8.49 with standard deviation 0.57. On the third day , the post test score was 7.9 with standard deviation 0.56 , the mean difference was (0.57) normal and statistically significant. That is normal routine care was effective in improving the level of maturity among preterm babies. On the fifth day, the post test score was 6.8 with standard deviation 0.55.when

compare with the third day post test score, the mean difference (1.1) was high and statistically significant. That is the level of maturity of preterm babies were improving by normal routine treatment.

When we compare the pretest score with the fifth day post test, the mean difference was (1.69) and statistically significant. Hence the normal routine treatment was effective in improving the level of maturity among preterm babies in control group.

Section D

This section deals with the comparison of pre test and post scores of selected parameters among preterm babies between experimental and control group

Table 10: Comparison of selected parameters between experimental and control group using independent t test

Variables	Group	Test	Mean	Standard deviation	Mean difference	Independent t test	Significance at 0.05 level
Behavioural items	Exp	Pre test	8.46	1.50	0.03	0.76 **NS**	58 df 2.0
	Cont	Pre test	8.43	1.52			
Behavioural items	Exp	Post test	22.30	2.64	11.57	22.33 **S**	58 df 2.0
	Cont	Post test	10.73	0.94			
Physiological parameters	Exp	Pre test	8.43	0.68	0.06	0.19 **NS**	58 df 2.0
	Cont	Pre test	8.49	0.57			
Physiological parameters	Exp	Post test	4.43	0.75	2.37	17.03 **S**	58 df 2.0
	Cont	Post test	6.8	0.55			

NS : Not Significant S : Significant at 0.05 level

Table 10 shows that,

The pre test mean behavioural items score in the experimental group was 8.46 SD 1.50 and in the control group was 8.43 SD 1.52.the mean difference was low and statistically not significant .that is in the pre test both the groups are same.

In the post test mean behavioural items score in the experimental group was 22.30 SD 2.64 and in the control group was 10.73 SD 0.94.the mean difference was high and statistically significant. That is the tactile stimulation was effective than the normal routine treatment.

In the pre test mean physiological parameters score in the experimental group was 8.43 SD 0.68 and in the control group was 8.49 SD 0.57.the mean was low and statistically not significant. That is in the pre test both groups are same.

In the post test mean physiological parameters score in the experimental group was 4.43 SD 0.75 and in the control group was 6.8 SD 0.55.the mean difference was high and statistically significant. That is the tactile stimulation was effective than the normal routine treatment.

Section E

This section deals with the association between pre test score on selected parameters among preterm babies with their selected demographic variables

Table 12 shows the Association between physiological parameters of preterm babies with their selected demographic variables in experimental group.

SNo	Demographic Variables	Effect of tactile stimulation		X2	Table value	Significance at 5 % level
		Moderate	Severe			
		f	f			
1	Gender a) Male b) Female	9 5	7 9	1.23	3.84 1 df	**NS**
2	Gestational Age (in weeks) a) 34 – 37 weeks b) 32 – 34 weeks c) Less than 32 weeks	4 6 4	0 5 11	7.42	5.99 2 df	**S**
3	Birth Weight a) 1000 – 1300 grams b) 1301 – 1700 grams c) 1701 – 2000 grams	2 7 5	7 9 0	8.01	5.99 2 df	**S**

Table 12, depicts the association between the tactile stimulation with their selected demographic variables . There was significant association between tactile stimulation in relation to gestational age (x^2 =7.42, $p < 0.5$) and birth weight (x^2= 8.01, $p < 0.05$) , There was no significant association when compared to gender.

Behavioural items association with selected demographic variables

In the pre test all the preterm babies (30) , comes under the category of severe prematurity level. Hence association of behavioural items could not be calculated.

CHAPTER – V

DISCUSSION

The discussion chapter deals with sample characteristics and objectives of the study. The aim of this present study was to assess the effect of tactile stimulation on selected parameters among preterm babies in selected hospital at Nagercoil.

Objectives of the study

- To assess the pre test and post test level of selected parameters among preterm babies.
- To determine the effectiveness of tactile stimulation on selected parameters among preterm babies in experimental group.
- To find out the association between the pretest level of selected parameters of preterm babies and the selected demographic variables in experimental group.

Major findings of the study

To assess the pre test and the post test level of selected parameters among preterm babies.

The demographic variables of babies among preterm babies on experimental and control group such as gender, gestational age and birth weight.

Regarding gender 16(53.33 %) were males in experimental group and 13(43.33 %) in control group and 14(46.67 %) females in experimental group and 17(56.67 %) in control group.

Regarding Gestational age majority 15(50.00%) of babies in experimental were babies less than 32 weeks , 11(36.67) of babies in control group were between 32 – 34 weeks and 12(40.00%) of babies in control group and least 4(13.33%) in experimental group and 5(16.67%) in control group.

Regarding Birth weight 9(30.00%) less than 1000 – 1300 grams in experimental group and 8(26.67%) in control group and majority 16(53.33%) of babies between 1301 – 1700 grams in experimental group and 9(30.00%) in control group, and least 5(16.67%) in experimental group and 6(20.00) in control group were between 1701 – 2000 grams.

The findings shows that the pretest scores on behavioural items in experimental group 30 babies had severe prematurity, In post test 2 babies had severe prematurity and 26 babies had moderate prematurity and 2 babies had mild prematurity on day three and 7 babies had moderate prematurity and 23 babies attained mild prematurity on day five.

The findings shows that the pretest scores on behavioural items in control group 30 babies had severe prematurity in the pre test , In post test 21 babies had severe prematurity and 9 babies had moderate prematurity on day three and 16 babies had severe prematurity and 14 babies had moderate prematurity on day five.

The findings shows that in pretest scores on physiological parameters in experimental group 16 had severe prematurity and 14 had moderate prematurity in pre test , In post test 30 babies had moderate prematurity on day three and 10 babies had moderate prematurity and 20 babies had mild prematurity on day five.

The findings shows that the pretest scores on physiologic parameters in control group had 15 babies had severe prematurity and 15 had moderate prematurity. In post test 16 babies had severe prematurity and 13 babies had moderate prematurity on day three and 28 babies had moderate prematurity and 2 babies had mild prematurity on day five.

The second objective of the study is to determine **the effectiveness of tactile stimulation on selected parameters among preterm babies in experimental group**. In the pre test mean tactile stimulation effectiveness in terms of behavioural items score was 8.46 with standard deviation 1.50. On the third day , the post test score was 15.26 with standard deviation 2.87 , the mean difference was (6.80) high and statistically significant. That is tactile stimulation was effective in improving the level of maturity among preterm babies. On the fifth day, the post test score was 22.30 with standard deviation 2.64.when compare with the third day post test score, the mean difference (7.03) was high and statistically significant. That is the level of prematurity of preterm babies were improving by practicing the tactile stimulation.

In the pre test mean tactile stimulation effectiveness in terms of physiological items score was 8.43 with standard deviation 0.68. On the third day, the post test score was 7.23 with standard deviation 0.73, the mean difference was (1.20) high and statistically significant. That is tactile stimulation was effective in improving the level of maturity among preterm babies. On the fifth day, the post test score was 4.43 with standard deviation 0.75. when we compare with the third day post test score, the mean difference was (2.80) was high and statistically significant. That is the level of maturity of preterm babies were improving. Hence

the tactile stimulation was effective in improving the level of maturity among preterm babies .

The findings were supported by the study conducted by **Pasilicthilaka.,(2009)** on effect of tactile stimulation on weight ,heart rate ,feeding pattern ,sleeping time and crying spells among preterm babies. The result shows that the preterm babies who received the tactile stimulation achieved weight gain ($t = 4.01$), stable heart ($t = 12.5$), improved feeding pattern ($t = 21.69$), increased sleeping time ($t = 11.63$), decreased crying spells ($t = 10.25$) than control group ($p<0.005$). The study concludes that the tactile stimulation when administered to preterm babies , has a beneficial effect on growth and behavioural development.

Mann N.P. etal., (2009), study revealed that two treatment group gained significantly more weight compared to the control group. Thus it concludes massage therapy was beneficial in gaining weight in preterm babies.

Charpak etal .,(2008),The findings suggested that massage improved body fat deposition and, in turn, growth quality of preterm infants in a sex-specific manner.

Jyotiarora etal., (2005), The results found that the preterm babies , who received tactile stimulation achieved weight gain, stable heart rate, improved feeding pattern , increased sleeping pattern, and decreased crying spells than control group . The study concludes that the tactile stimulation when administered on preterm babies , has a beneficial effect on growth and development.

Dabi etal .,(2005), Thus the result of their study showed that massage therapy might enhance optimal physiological responses and behavioral

organization of premature infants Nsg staff in the NICU can use massage to promote the infant's capability to respond positively to his environment and to provide developmental support for healthy premature infants.

Salles et al .,(2005),The study revealed that the preterm neonates received light pressure and preterm neonates received moderate pressure exhibited greater weight gain and increased vagal tone and gastric motility during and immediately after treatment. Gastric motility and vagal tone during massage therapy were significantly related to weight gain.

Sloan ., (1994) , The result revealed that the stimulated neonates had average of 47% greater weight gain per day, and tactile/kinesthetic stimulation was a cost effective way to facilitating growth and sleep wake behaviour in very small preterm neonates.

FaranakAliabadi etal ., (2013) ,the study reveals that the tactile kinesthetic stimulation was effective in increasing the weight in low birth weight babies

Reza sacidietal., (2013), Hence the result showed that the daily massage with MCT oil in premature neonates is effective for weight gain without causing any complications.

To find out the association between the selected parameters of preterm low birth weight babies in pre test and the selected demographic variables.

The study shows that chi square was calculated to find out the association between the tactile stimulation with their selected demographic variables .significant association was found between tactile stimulation in relation to

gestational age (x^2 =8.08, $p < 0.5$) and birth weight (x^2= 8.24 , $p < 0.05$) , and no significant association when compared to gender.

In behavioural items the pre test score of all the babies (30) comes under the category severe prematurity level. Hence association of behavioural items could not be calculated.

The findings were supported by the study conducted by **Saumya John etal., (2005)**to assess the effectiveness of massage therapy on weight and sleep wake pattern among preterm infants. The study findings revealed that there is an association between the parameters with their selected demographic variables & Association between post test level of weight and selected demographic variables in experimental group gestational age $x^2 = 15.75$, condition of infant $x^2 = 19.62$, type of feed $x^2 = 7.81$ & association between post test sleep wake pattern with selected demographic variables in experimental group gestational age $x^2 = 15.75$, condition of infant $x^2 = 8.76$, type of feed x = 8.72.

CHAPTER – VI

SUMMARY,CONCLUSION, IMPLICATION RECOMMENDATIONSAND LIMITATIONS

The heart of the research lies in reporting the findings. The findings of the study has implications in the different branches of nursing profession. By assessing the effectiveness of tactile stimulation on selected parameters helps to improve the standards of nursing profession. This is the most creative and demanding part of the study. This chapter gives a brief account of the present study including the conclusion drawn from the findings , nursing implications of the study and recommendations.

This chapter deals with

- Summary of the study
- Conclusion
- Nursing Implication
- Recommendations
- Limitations

Summary of the study

The study was done to assess the effect of tactile stimulation on selected parameters among preterm babies.

The research design used for this study was Quasi experimental design. The research approach was Quantitative approach which was conducted in Kanyakumari Medical College Hospital at Nagercoil. Conceptual framework

adopted in the present study was Modified J.W. Kenny's Open System Model (1990). The sample size was 60 preterm babies.

The samples were selected by using convenient sampling method. The total samples were 60 preterm babies. 30 babies in the experimental group and 30 babies in the control group. Pre test was conducted by using Modified Neonatal Brazelton Neuro Behavioural Assessment Scale for experimental & control group. Intervention of Tactile Stimulation was given to the preterm babies with 10ml of coconut oil for 15 minutes daily morning &evening for 5 days for experimental group. Post test was assessed on the 3rd and 5th day evening by using Modified Neonatal Brazelton Neuro Behavioural Assessment Scale for samples in experimental& control group

The data was analyzed and tabulated using descriptive and inferential statistics. Paired 't' test , independent 't' test was used to assess the effectiveness of tactile stimulation and chi square test was used to find out the association between the effectiveness with their selected demographic variables among preterm babies.

Objectives of the study

- To assess the pre test and the post test level of selected parameters among preterm babies
- To determine the effectiveness of tactile stimulation on selected parameters among preterm babies in experimental group and control group.

- To find out the association between the selected parameters of preterm babies in pretest and the selected demographic variables

Major findings of the study

- ❖ Regarding gender 16(53.33 %) were males in experimental group and 13(43.33 %) in control group and 14(46.67 %) females in experimental group and 17(56.67 %) in control group.
- ❖ Regarding Gestational age majority 15(50.00%) of babies in experimental group and 13 (43.33 %) babies in control group were less than 32 weeks , 11(36.67) of babies in experimental group and 12 (40.00%) babies in control group were between 32 – 34 weeks and least 4(13.33%) in experimental group and 5(16.67%) in control group.
- ❖ Regarding Birth weight majority 16(53.33%) of babies between 1301 – 1700 grams in experimental group and in control group, 9 (30.00%) in experimental group and 8 (26.67%) in control group were between 1000 – 1300 grams and least 5(16.67%) in experimental group and 6(20.00)in control group were between 1701– 2000 grams.
- ❖ The pre test mean Neuro behavioural items score in the experimental group pre test mean was 8.46 , SD 1.50 and in the control group mean was 8.43 , SD 1.52. The mean difference was low and statistically not significant ,that is in the pre test both the groups are same. In the experimental group , the post test behavioural items score mean was 22.30 , SD 2.64 and in the control group mean was 10.73 , SD 0.94.the mean difference was high and statistically significant. That is the tactile stimulation was effective than the normal routine treatment.

- In the experimental group pre test physiological parameters score mean was 8.43 , SD 0.68 and in the control group mean was 8.46 , SD 0.57.the mean was low and statistically not significant. That is in the pre test both groups are same. In the experimental group post test physiological parameters score in the mean was 4.43 , SD 0.75 and in the control group mean was 6.8 , SD 0.55.the mean was high and statistically significant. That is the tactile stimulation was effective than the normal routine treatment.
- Significant association was found between tactile stimulation in relation to gestational age (x^2 =8.08, $p < 0.5$) and birth weight (x^2= 8.24 , $p < 0.05$) , and no significant association when compared to gender in both experimental group and control group.

Conclusion

The study was done to determine the effectiveness of tactile stimulation on selected parameters among pre term babies . The mean score on behavioural items in experimental group was 8.46 SD 1.50 and post test was 22.30 SD 2.64 respectively. The mean score on physiological parameters in experimental group was 8.43 SD 0.68 and post test was 4.43 SD 0.75 respectively. it indicates the significant changes as a result of tactile stimulation upon each physiological parameters. The t value was significant at $p < 0.05$ level. From the results of the study , it is concluded that tactile stimulation was effective than normal routine care in improving the level of maturity among preterm babies. Therefore the

investigator felt that more importance should be given to tactile stimulation in collaboration with routine care on preterm neonates.

Nursing Implications

Preterm “fetal” neonate admitted in NICU is subjected to sensory experiences vastly different from those experienced in the womb. They require supportive care and interventional stimulation, simulating the intrauterine environment for their growth and development. The researcher has drawn the following nursing implications from the study which is of vital concern for nursing practice, nursing education , nursing administration and nursing research.

Nursing Practice

- Nurses can assume a novice to expert role by providing a teaching programme on tactile stimulation through using various improvised technology.
- Nurses can incorporate tactile stimulation with routine NICU care of preterm neonates.
- Nurses can inculcate the tactile stimulation technique , as evidence based practice for evaluating the massive developmental outcomes.

Nursing Education

- The nursing curriculum should be updated by including the topics like tactile stimulation.

- Nurse educator should ensure that the students learning importance of tactile stimulation and assessment of the effectiveness of tactile stimulation as an independent nursing intervention.
- Periodic conferences , seminars , workshops and symposiums can be arranged regarding tactile stimulation to make nursing professionals competent enough to meet their ever changing needs to the society.

Nursing Administration

- The nurse administrators should take more responsibilities to incorporate the importance of holistic care in new born care.
- The nurse administrator should explain the effectiveness of tactile stimulation to the staff nurses and motivating them to practice in the NICU.
- The nurse administrators should organize in service education programs on tactile stimulation for nurses.

Nursing Research

- Nursing researchers should be aware about the new trends and existing health care system .
- In future nursing research , if the number of samples and durations of stimulation will be increased , it may be rewarding to evaluate the efficacy of tactile stimulation.
- Practice evidence based nursing to maximize the optimum care for the clients .

Recommendations

- Similar study can be undertaken on a large sample.
- A comparative study can be performed to evaluate the effectiveness of tactile stimulation with other multi model stimulation.
- A comparative study can be conducted to evaluate the long term effect of tactile stimulation on preterm neonates.
- A similar study can be conducted to evaluate the effect of tactile stimulation on term infants.
- Management of low birth weight babies is sensitive to cultural norms and a comparative intercultural study is likely to bring out new insight in the present phenomena of interest.

Limitations

- The sample of the present study was drawn among the preterm low birth weight babies, therefore the results cannot be generalized in general population.
- The findings of the present study was applicable to stable preterm babies. Hence it cannot be generalized.

Summary

This chapter dealt with summary, conclusion, implications, recommendations and limitations.

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